TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

JANUARY 1, 1961
Price 50c

REGULATION AND SERVICE, by Joseph J. Brown

Simplex And Phantom Circuits, by C. D. Ehinger

PUBLIC RELATIONS IN THE 60's, by R. L. Post

Wide-Area Telephone Service Rates, (See page 18)

Let our "Revenue Men" show you THE NEW POTENTIALS OF DIRECTORY REVENUE

Take a man like

Bill Lyons...

Bill is one of our "Revenue Men" in Long Beach, California.

After graduating from prep school in 1932, Bill went to work for a prominent New England manufacturing company. By 1942 he had become a department head. Then he joined the Marines, where he served as a machine gunner in the South Pacific and was awarded the Purple Heart.

In 1945, Bill returned to the states and decided to further his education. He entered Long Beach City College as an advertising major, and was elected president of his freshman, sophomore and junior classes.

It was in 1949 that Bill joined the General Telephone Directory Company as a sales representative in our Long Beach Division. In 1955 he was promoted to Sales Supervisor.

Bill makes his home in Long Beach with his wife and three children. Over the years he has devoted his time and talents to the Community Chest and the Toastmasters Club.

Bill Lyons is a good example of the "Revenue Men" who work for General Telephone Directory Company—and for you. Men who are an asset to any community in which they live.

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THE TE&M FRONT COVER

The U.S. Army Signal Corps marked the climax of its Centennial Year Dec. 15 with the dedication of the East Coast Relay Station at Fort Detrick, Md. The installation is the latest strategic teletypewriter switching center in the Army's global communications network. The ultra-modern 200-line system links the United States with commands throughout the Atlantic and Western Hemisphere. The center replaces the "torn-tape" system and serves as a consolidation of many of the communications centers at East Coast Army bases and government centers. The station is completely automatic — normal message traffic through the station requires no manual handling. It has the capability of processing approximately 275,000 messages a day. Switching equipment for the East Coast Relay Station was engineered and manufactured by Automatic Electric Co., Northlake, Ill. Top photo shows view of master console control panel at the East Coast Relay Station, Ft. Detrick, Md. Bottom photo shows the station operations room at Ft. Detrick.

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POSTMASTER . . . Please send form 3579 to TELEPHONE ENGINEER & MANAGEMENT, 7720 N. Sheridan Rd., Chicago 26, Ill.

New line of

ELECTRONIC SECRETARY®

telephone answering sets

LP (Long Play) model

The deluxe model that "does everything." Answers the phone automatically with message prerecorded by customer—(easily "erased" and changed)—records incoming messages, plays them back when customer returns. Takes any number of incoming messages up to 2-hour capacity. For service companies and individuals, stores, offices, plants and specialized uses in many other types of business.

SP (Short Play) model

This performs the same answering function as the LP model but has a more limited capacity. Answers the phone, gives message to caller, records up to twelve 13-second incoming messages. Compact, about typewriter size. Specially designed for the small service outfit or business. Low monthly rental greatly broadens the market.

AO (Answer Only) model

Answers phone with prerecorded announcement, but does not record incoming calls. Has microphone and tape recorder. Used by all sorts of organizations to deliver informative announcements up to 3 minutes. Theatres tell what's playing. Fuel supplies and others leave numbers to call for emergency service at night. Advertisers sponsor weather reports, stock closings. Churches give inspirational messages.

ROCHESTER STORY

How the newest idea in telephone service helps a progressive telephone company produce substantial new revenue

Only a few years ago, the Rochester (N. Y.) Telephone Corporation had never heard of the ELECTRONIC SECRETARY® Telephone Answering Set. Today, they have installed nearly 400 units, and are installing more every month.

They have discovered that nearly every business subscriber in their area is a potential customer for Automatic Telephone Answering Sets. In almost every case, they can easily demonstrate to a prospect how it will bring in enough new business to more than pay for the rental.

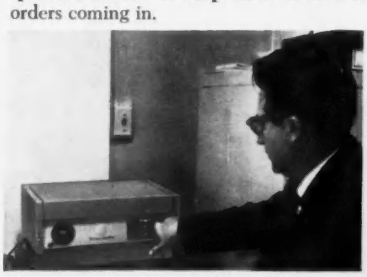
In order to facilitate the customer's selection of a telephone answering set most suitable for his business, Rochester Telephone Corporation has a demonstration room with all of the various models activated for demonstration purposes.

The following examples from Rochester may suggest how *you* could benefit from offering ELECTRONIC SECRETARY Sets. For full information, call or write either distributor listed below.

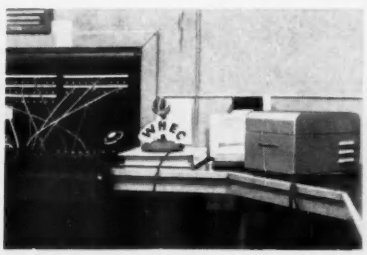
TOBIN PACKING, a large regional packer, speeds orders and gets deliveries out faster with the help of batteries of LP (Long Play) ELECTRONIC SECRETARY Sets. Here a field salesman calls in his orders at specified times – to keep an even flow of orders coming in.

At Rochester the answering sets are stacked in batteries of three. Two continuously take orders while an operator transcribes from the third. The new Albany plant which is a model for the industry is similarly equipped.

Tobin trucks roll out on time to meet their rigorous delivery schedules – thanks to this speed-up of orders from salesman to shipping floor. The streamlined order-transmission system for Tobin was developed by Electronic Secretary engineers and Rochester Telephone.



REAL ESTATE agent Mr. Donsky, never misses a call day or night – even when he's out showing a house, thanks to his LP (Long Play) ELECTRONIC SECRETARY Answering Set. He has used the ELECTRONIC SECRETARY Set steadily since 1957, and reports that it receives *most* of his calls.



RADIO STATION WHEC plugs an ELECTRONIC SECRETARY AO (Answer Only) Set into its switchboard at night to inform callers the station is closed till morning, but referring them to a special number in case of emergency (fire, accident, etc.). Thus they give reliable round-the-clock communications service to the city.

DENTISTS and DOCTORS use ELECTRONIC SECRETARY Sets to answer the phone while they are out on calls, at home or when busy tending patients. (SP Short Play model illustrated). As you can see, nearly everyone has use for the ELECTRONIC SECRETARY Set. They just need to be told of this great new service you can offer.

Electronic Secretary Industries, Inc., Subsidiary of GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

distributed by

AUTOMATIC ELECTRIC SALES CORPORATION
400 North Wolf Road Northlake, Illinois

LEICH SALES CORPORATION
427 West Randolph St. Chicago 6, Illinois

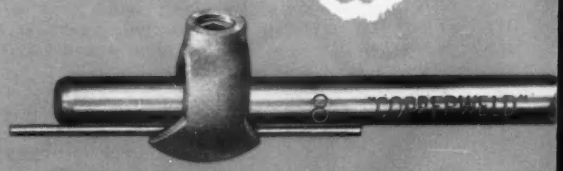
PROTECT YOURSELF AGAINST LIGHTNING

AE has everything you need for plant protection

Only top-quality equipment gives you maximum protection. Automatic's warehouses are stocked with the right equipment for this vital job. Call your AE man for all your needs. And remember, at AE you get *prompt delivery* from a *large stock* of *famous brands*.

HEMINGRAY INSULATORS

ALPHADUCT GROUND WIRE
Single copper conductor provides quick, efficient grounding.



COPPERWELD GROUND RODS & CLAMPS
Combine the strength of steel with the conductivity of copper for the best in quick, efficient grounding.

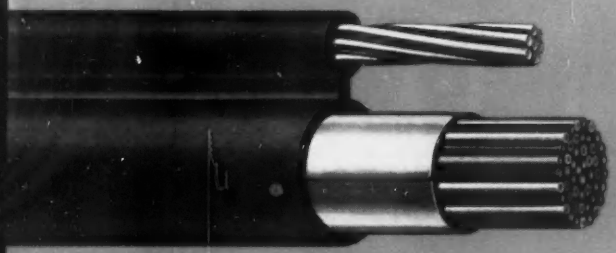
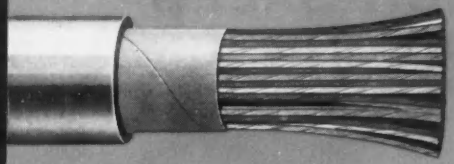


FIGURE 8 QUALPETH BY GENERAL CABLE
Aluminum or copper shield.
Speeds excess voltages to ground.

ALUMINUM SHEATH BY GENERAL CABLE
Keeps lightning out of your transmission.
Used extensively in severe lightning areas.



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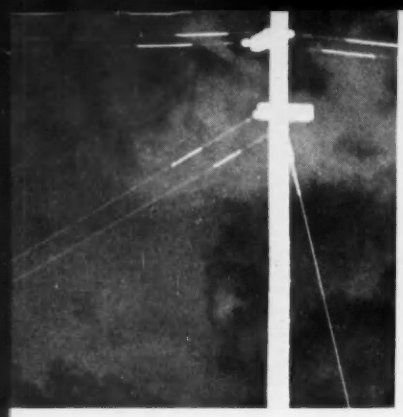
GENERAL SYSTEM



The Perpetual Problem of Lightning Damage

By ROY SAVAGE

Roy Savage, director of supply sales, Automatic Electric Sales Corporation.

The other day, we had one of those noisy, Chicago-area thunderstorms, complete with plenty of lightning. That storm brings to mind one of the oldest problems in telephony—protection of outside plant. It's a problem that presents both a duty and a challenge to telephone men. We have a duty to protect those who use our equipment. We are challenged to safeguard our investment.

When lightning crackles around cable, the damage of a direct hit is obvious—a shattered pole, a cable fused into a solid mass. But when the cable is not struck directly, a less apparent danger can develop. Excessive voltages may be produced on telephone lines by means of induction. This occurs more often than direct hits. When it happens, a free charge travels through the cable. If it reaches a weak spot in the insulation, the charge bursts through. Conductors are ruined, transmission cut off.

GROUNDING PREVENTS DAMAGE

However, if a well-constructed ground is present and a well-constructed shield used, the excess voltage speeds harmlessly out of the cable into the ground. Because of their ability to prevent damage, certain grounding practices deserve constant review.

Grounding is relatively simple when telephone equipment is placed jointly with power lines. The power lines help provide an overhead shield against lightning. Grounding consists of merely cutting into the power company's existing system.

In rural areas, telephone plant is usually installed separately. A lack of tall structures increases the danger of lightning strikes, making it necessary to install grounding rods every ¼-mile or less.

Low overall resistance makes grounding effective (15 ohms or less is adequate). Factors contributing to resistance are: type of soil, temperature and moisture of the soil, and the length and depth of the rods.

Fill soils, containing refuse, ashes or cinders are lowest in resistance, averaging 14 ohms. This resistance is lowered further as temperature and moisture increase.

The greater the contact area between rod and soil, (or, the longer the rod) the lower is resistance. The depth to which rods are driven is important in two ways: (1) Deeper soil is less resistant than upper soils, and (2) In areas where freezing takes place, the rod should be driven below the average frost line.

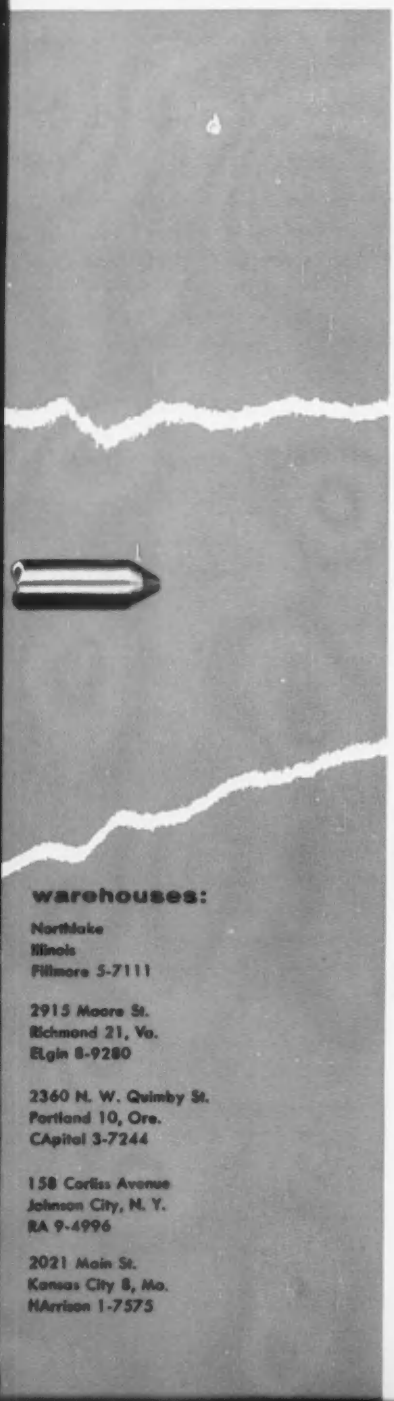
All of these factors should be employed for maximum grounding effectiveness. A resistance test should be taken as a final assurance that the installation will do the job.

IMPORTANCE OF EQUIPMENT

Grounding practices are only as good as the equipment used to carry them out. Cable protection begins with the cable itself. Features to look for in cable are uniformly low resistance and aluminum or copper shielding. These prevent voltage breakthrough and speed charges to the ground connection. Ground rods and clamps of high-conductivity copper and high-strength steel take voltages rapidly into the ground.

These precautions are extensive and involve work, but they are well worth it. We need only to witness the fury of lightning to appreciate the importance of plant protection.

NOTE: More detailed information on this subject may be obtained by writing Mr. Savage at Automatic Electric Sales Corporation, Northlake, Illinois



coming

CONVENTIONS

MILITARY ELECTRONICS CONVENTION, Biltmore Hotel, Los Angeles, Calif., Feb. 1, 2, 3, 1961.

LOUISIANA Tel. Assoc., Captain Shreve Hotel, Shreveport, La., Feb. 15-17, 1961.

MINNESOTA Tel. Assoc., Radison Hotel, Minn., Minn., Feb. 19-22, 1961.

KENTUCKY Tel. Assoc., Phoenix Hotel, Lexington, Ky., March 7, 1961.

TEXAS Tel. Assoc., Rice Hotel, Houston, Texas, March 12-14, 1961.

IOWA Tel. Assoc., Savery Hotel, Des Moines, Iowa, March 23-24, 1961.

INTERNATIONAL POLYTECHNIC SYMPOSIA, Auditorium of the Engineering Societies, New York City, April 4-6, 1961.

NEBRASKA Tel. Assoc., Cornhusker Hotel, Lincoln, Nebraska, April 5-6, 1961.

OHIO Tel. Assoc., Deshler Hilton Hotel, Columbus, Ohio, April 18-19, 1961.

ILLINOIS Tel. Assoc., Pere Marquette Hotel, Peoria, Ill., May 17-19, 1961.

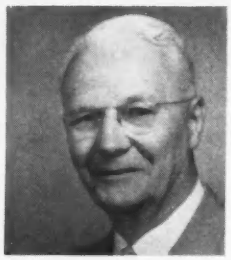
KANSAS-MISSOURI Tel. Association, Continental Hotel, Kansas City, Mo., May 22-23, 1961.

PENNSYLVANIA Tel. Assoc., Poco Manor Inn, Poco Manor, Pa., June 5-7, 1961.

WASHINGTON-OREGON Tel. Assoc., Empress Hotel, Victoria, B. C., June 15-16, 1961.

NEW YORK Tel. Assoc., Scaroon Manor, Schroon Lake, N. Y., June 19-21, 1961.

CALIFORNIA Tel. Assoc., Hawaiian Village, Honolulu, Hawaii, June 26-30, 1961.



INDUSTRY OBSERVATIONS

By L. A. GRITTEN

"What's In A Name?"

FOR A telephone man in 1961, the answer to Juliet's plaintive question could be "Plenty!." The company names we now use are unsuitable. We need a new name to embrace our manifold doings. Neither "telephone" nor "telephone & telegraph" adequately suggests the modern services of our operating companies. Their derived meanings — "distant sound" and "distant writing" — convey little of our variety; to a purist they do not even hint at electricity.

Telephony is in course of becoming merely an accessory in a far broader and more diverse service of electrical communication of every kind. We need a name for it, preferably a single word, that will express what we are.

This should not be dismissed as trivial. Our customers realize too little of our function in such things as television, telephotography, teletype, mobile radio and so forth. They are generally unaware of the essential part played by telephone men and telephone companies in space satellite and missile development.

A concern selling ships, shoes and sealing wax may well call itself the John Doe Company and leave the interpretation to its salesmen; but a utility company serving the public in this era of socialistic erosion is in a different position. It cannot afford to neglect any means of making its work and its worth better known to its customers, for they have the power at any time to vote it to death and toss it to the public ownership wolves.

We need a word. "Communications" is too broad; it covers anything from mail delivery and smoke signals to intracompany propaganda. "Telecommunication" is also unspecific and, what is worse, too much of a mouthful by several syllables. Probably we must have a coined word, something as new and different as the services it must cover. Nothing in an existing lexicon will do.

Calling all philologists! We want a word!

Purchasing Power

SOME telephone companies permit their employes to take full advantage of the company's purchasing power. Anything from fishing tackle to furniture may be bought "through the company" at less than the normal retail cost.

Other companies deny such privileges, except perhaps to the "upper one per cent" on Mahogany Row.

Arguments for: Employes appreciate the privilege and recognize it as equivalent to a considerable increase in wages. It tends toward a warmer regard for the company.

Arguments against: It is an added expense, in purchasing department time and accounting; it is a fringe benefit unrecognized as such when bargaining with a union; and it is objectionable to local merchants, particularly in the smaller communities.

No statistics are available, but we gather that there is a wide divergence of practice and opinion in this regard. We should welcome an expression of your thought about it, and any information as to the policy of your company.

Transistors To Come

"RUSSIAN research in solid state physics is growing at so swift a pace that the rate of Soviet publication in this field will probably surpass that of the United States in 5 to 10 years." That comment did not

Please turn to page 13

(ADVERTISEMENT)

A Report to the Telephone Industry . . .

PREFORMED
Plastic Spacer Unit

Eliminates mid-span hits — permits longer spans — reduces construction and maintenance costs.

FOLLOWING are the highlights of a recently completed survey by an independent research organization. This report—based on the survey—is presented as a service to the telephone industry.

The need for the new PREFORMED Plastic Spacer Unit is as old as the use of open wire lines—and the longer the spans, the greater the need. This is only one impression to be gained by studying the results of a survey of longer span open wire lines. Even longer spans will be used as telephone companies revise engineering specifications to take full advantage of the capabilities of new, stronger open wires and the Plastic Spacer Unit.

Telephone plant men, engineers, and managers—all over the country—participated in a survey studying the application of the Plastic Spacer Unit. The survey was based on an initial mailing of 94 questionnaires. The locations to which the questionnaires were mailed are shown on the distribution map included with this report. The total response measurement was 72.3% based on the receipt of 68 replies. Seventeen of the questionnaires were returned with incomplete answers. Primarily, this was because the Plastic Spacer Unit had not been in service long enough for these telephone companies to make a thorough analysis under various operating conditions.

Tabulation of Survey Results

The questions in the survey and the statistical tabulation of the results are as follows:

1. Have you experienced mid-span hits or momentary contacts in the span between wires of an open wire line?

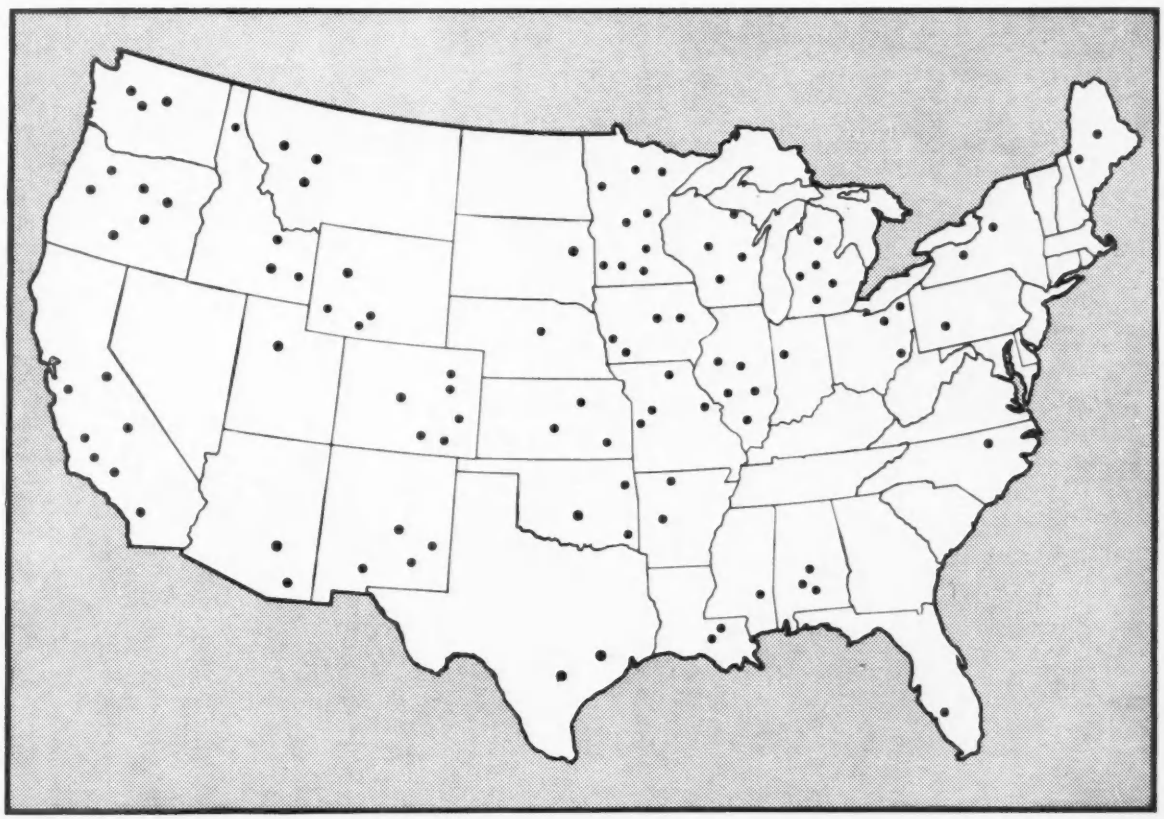
   Yes—48 No—6

2. Have you installed the new PREFORMED Plastic Spacer Unit?

   Yes—41 No—10

   What size Spacer did you use?

   The sizes ranged from 4″ to 12″. The 8″ Spacer was indicated in about 33-1/3% of the replies.



Map of questionnaire distribution.

Lineman installing a Plastic Spacer Unit.

3. What was the type and size of wire on which the Spacer was installed?

   Sixteen types and sizes of wire were reported. The following are typical:

   .080 Copperweld
   HTL 135
   .080 Insulated copper ply
   .102 Hard drawn copper
   .109 H. S. (Galv. Steel)

   How many have you installed?

   The total number of Spacers reported in replies to this question was 1540, for an average of 41 per report.

4. On what type open wire lines did you install the Spacer?

Type Open Wire Line	*No. of Times Reported*
Standard lines with 12″ spacing	20
Lines with 10″ spacing (Type B Arms)	5
Lines with 9¾″ spacing pony arms	3
Lines supported on pole brackets	18
Carrier line, insulators spaced 8″ between wires—16″ between circuits	1
Spans adjacent to 4″ point transpositions	6

5. How long were the spans on which you installed the Spacer?

   Span lengths reported in the survey ranged from 150 feet to 1,000 feet, with an average length of 401 feet. The Spacers were also used on some extra long test spans with lengths of 1,900 and 2,812 feet being reported. These extra long spans were excluded in determining the average length spans in the survey.

6. How many Spacers did you use in each span?

No. of Spacers	*No. of Times Reported*
1	37
2	4
3	1

7. Where did you locate the Spacer in the span?

Location of Spacer	*No. of Times Reported*
Mid-span	33
Adjacent to pole	6

   Spacers located adjacent to the pole were located at one-quarter and three-quarter intervals along the span or were installed in conjunction with transposition brackets.

8. Did you place the spacing portion of the Spacer above or below the wires?

Position of Spacing Portion	*No. of Times Reported*
Above wires	22
Below wires	12

   (The recommended location for the spacing portion of the Spacer is above the wires.)

9. Where did you use the Spacer Units?

Where Used	*No. of Times Reported*
Between wires of a pair	39
Between wires of adjacent pairs	5

10. How did you make the installations?

Method Used	*No. of Times Reported*
Ladder truck	12
Ladder	15
Dropping wires to ground	10
Pulling wires down with handlines	8
From pole or crossarm	4

11. If Spacer was installed at pole and moved out into the span, how did you move the Spacer?

	No. of Times Reported
Pulled with one doubled handline	3
Pulled with two doubled handlines	2
Pulled with wire raising tool	2
Pushed with wire raising tool	3
Pulled or pushed with other tool—Please enter type of tool used (Tree Trimmer)	1

12. Did you apply a lubricant to the wire or Spacer before you moved it into position along the span?

    Yes—2* No—18

    * 1 Graphite
    * 1 Gun Grease

    Some of the "no" answers to this question probably mean the user did not use a lubricant because the Spacer was installed directly in the final position instead of being pulled into place.

13. What was the average time required to install a Spacer?

Installation Time Reported	*No. of Times Reported*
10 or 15 seconds	2
1 to 5 minutes	5
5 to 10 minutes	13
10 to 20 minutes	8
30 minutes to 1 hour	4
Time not determined	2

    Some of the timing obviously was based on the time required to install the Spacer once the lineman was in position on the pole or ladder. Other reports included the time of moving the Spacer into position along the span.

    In most instances, the shortest installation times were reported when the Spacer was installed at the final position in the span. A report of three minutes including the move of 440 feet over relatively rough ground, and two reports of four minutes including travel are quite significant in this respect.

14. Did the Spacers do the job you expected?

    Yes—38 No—1

    The single "no" answer involved an exceptionally long span of 2,812 feet. In this instance the Spacer broke.

    A number of comments to this question were also received, of which the following are typical:

    "We are awaiting the snow this winter which builds up and melts off the line regularly, as it is in a mountain terrain, to gain more knowledge."

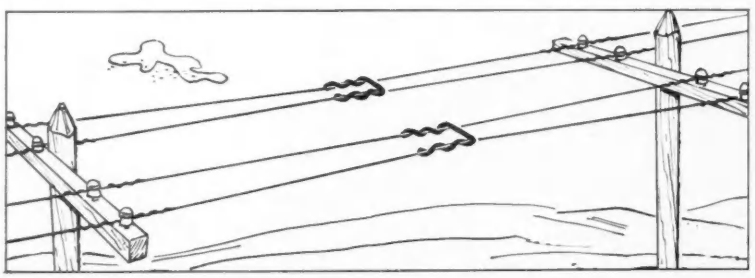
    "Only in two instances did slaps continue—we then installed an additional spacer and it eliminated the trouble."

    "We placed them on our joint use REA lines."

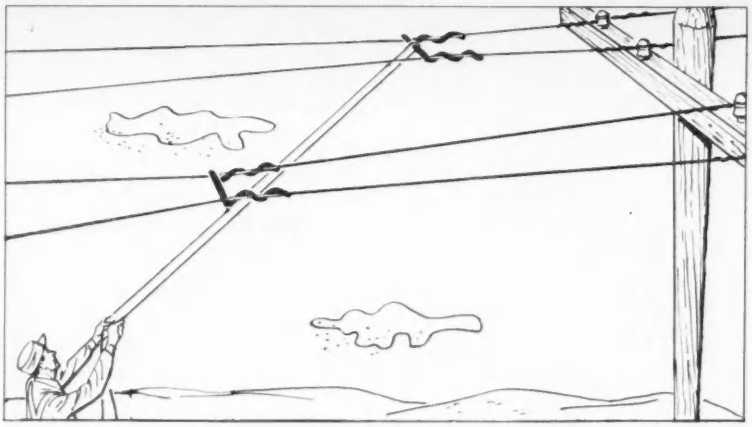
    "Actually saved the cost of setting a pole in some spans."

    "This type spacer will eliminate mid-span hits under any condition."

    "Line does not twist on span 953 feet across gulch."



Plastic Spacer Unit installed in mid-span of open wire line.



Pulling Spacer along span with doubled handline.

15. Has use of the new Spacer eliminated any trouble reports? This may include momentary shorts, crosses, "line goes dead" and similar reports which test O.K. and are found O.K.

    Yes—17 No—1

    Some of the comments to this question were:

    "Yes—mid-span slaps caused by heavy wind."

    "I would say that it has eliminated trouble in the long spans."

    "Where used—no trouble at all."

    "Yes (so far). Every wrapped line which Spacers prevent will save us a forty mile round trip, plus snow-shoeing in winter. Could prove to be a tremendous savings, especially in this particular application."

    "Definitely."

    "Eliminated mid-span hits." (Two reports).

    "We feel it has."

    "Haven't made study."

    "It did across gulch span 953 feet."

    "Yes—have not had any since installing Spacers."

    "Have had no further trouble on lines on which Spacers were applied."

16. Was the Spacer you used the correct size for your application?

    Yes—38 No—0

17. In which storm loading area are you located?

    Heavy—20 Medium—22 Light—5

18. Do you believe use of the new Spacer Unit will permit longer spans by eliminating the possibility of mid-span hits?

    Yes—33 Definitely—1

    Possibly—1 No—10

    Many of the answers to this question show how the new Spacer unit will permit longer span construction. Typical comments were:

    "400 feet." (3 reports).

    "400-600 feet providing area permitted. By this I mean the subscriber's locations and tree conditions."

    "Too early to say as yet."

    "We have 450 foot spans."

    "400-500 feet." (2 reports).

    "600 feet." (2 reports).

    "I had trouble with hits on 195 HTL 500 foot spans until installing spacers."

    "Not to exceed 500 feet."

    "350 feet maximum with unusual ice loading in last three years."

    "By using two to three spacers, 500 foot spans will be possible."

    "660 feet."

    "500 feet."

    "450 feet." (2 reports).

    "Up to 550 feet if ground clearance and conductor strength permit."

    "Dependent upon economics of securing ground clearance."

    "500 feet with two Spacers and HTL wire."

    "Our long spans would be joint in rural areas and possibly would require two Spacers in exposed areas."

19. Did you use the Plastic Spacer Unit before and after transpositions in conjunction with a conventional pinch bracket assembly?

    Yes—5 No—31

    If your answer is "yes", did the Spacer Units provide any tangible improvements at the transposition?

    Yes—3 No—2

20. Did you use the Plastic Spacer Unit before and after transpositions in conjunction with the new PREFORMED Plastic Pinch Bracket?

    Yes—0 No—30

21. What results did you achieve when the Spacer Unit was used to bundle two wires together to reduce line wire vibration?

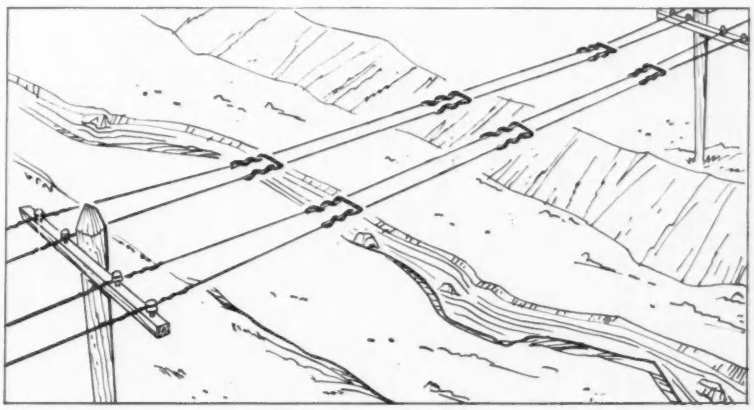
    Most of the replies reflect that the Spacers reduced vibration. Practically all the other replies stated that the amount of vibration reduction had not been observed. Thus, effective vibration reduction offers another advantage favoring use of the Spacer units.

22. Are you interested in receiving additional technical information on the use of the new Plastic Spacer Unit?

    Yes—40 No—5

Longer Open Wire Spans Reported

Open wire spans reported in this survey were longer than the spans reported in any other similar survey. Even longer spans will be used as telephone companies take full advantage of today's stronger line wires and the capabilities of the new Plastic Spacer Unit.



Spacers installed across gulch.

(ADVERTISEMENT)

Spacers Can Be Used to Eliminate Poles

Mid-span hits or crosses were indicated on spans as short as 150 feet in length. This is not unusual when one considers the gyrations and movement of open wires in a span during stormy weather. The wires do not move in unison. Instead, they swing back and forth and up and down in unpredictable patterns. As a result, any two wires, where the combined sag is greater than the separation, could come into momentary contact. On this basis, mid-span hits are more likely to occur where longer spans and greater sags are used.

For years the possibility of mid-span hits has caused telephone engineers to generally specify spans shorter than the stringing lengths of new stronger line wires would require. The shorter spans add up to more poles and substantially higher construction costs.

The survey revealed that longer spans can be used without increasing the possibility of mid-span hits, if Spacers are used at proper intervals to maintain wire separation in the spans. Savings in construction costs can be determined by subtracting the installed cost of the Spacers from the installed cost of the poles that can be eliminated.

The service results of Spacer equipped spans, as reported in the survey, are equally interesting. The Spacers keep the wires separated and perform all the functions of a pole except that of providing vertical support. On this basis, the end result of using the new Spacer units can be measured by how effectively mid-span hits are eliminated. Spacers installed in the middle of a 300-foot span make the span like two 150-foot spans, as far as mid-span hits are concerned. In a similar manner, a 450-foot span can be made into three 150-foot spans by placing Spacers 150 feet from each pole.

New Spacer Helps Solve Unusual Long Span Problems

Several unusual long span construction problems were mentioned in the survey. These included a 953-foot span across a gulch, several river crossings, and similar unusual long spans. Generally, the Spacers were installed as the line wires were pulled across the span. In other instances, the Spacers were installed at the poles and pulled into position with handlines. The completed spans reacted in the wind as though a number of intermediate poles had been installed.

Spacers Can Be Installed In a Number of Easy Ways

Many methods of Spacer installation were reported in the survey, such as from ladders or ladder trucks; dropping wires to the ground; pulling the wires down with a handline and pulling a Spacer along the span with a handline or wire raising tool. These reports show the Spacers can be installed equally well in any one of a number of ways. In some instances, placing the Spacer at a pole and pulling into position with a handline may be the most practical installation method. Direct installation in the final position on the span may be the best under another set of conditions. As a result, the telephone company can select any one of a number of procedures, according to individual requirements.

Spacers Reduce Line Wire Vibration

Many telephone companies reported that the Spacers proved effective in controlling line wire vibration. The vibration characteristic of a long span is broken into smaller segments when Spacers are installed. There is less chance of damaging vibration developing in a shorter span. As a result, the reduction of line wire vibration is a plus benefit gained by using Spacer units.

Spacers Used in Other Ways, Too

Telephone companies reported that Spacers were also used to solve a variety of everyday construction and maintenance problems. These applications are illustrated by the following comments:

> "Used Spacers on bracket line above gateway to improve clearance for lower wire."
>
> "Installed several Spacers on open wire drops where we couldn't anchor properly to keep span tight."
>
> "We use Spacers when we have a pole broken in a two-wire line. We remove the pole and install Spacer units in the line until we can replace the pole."

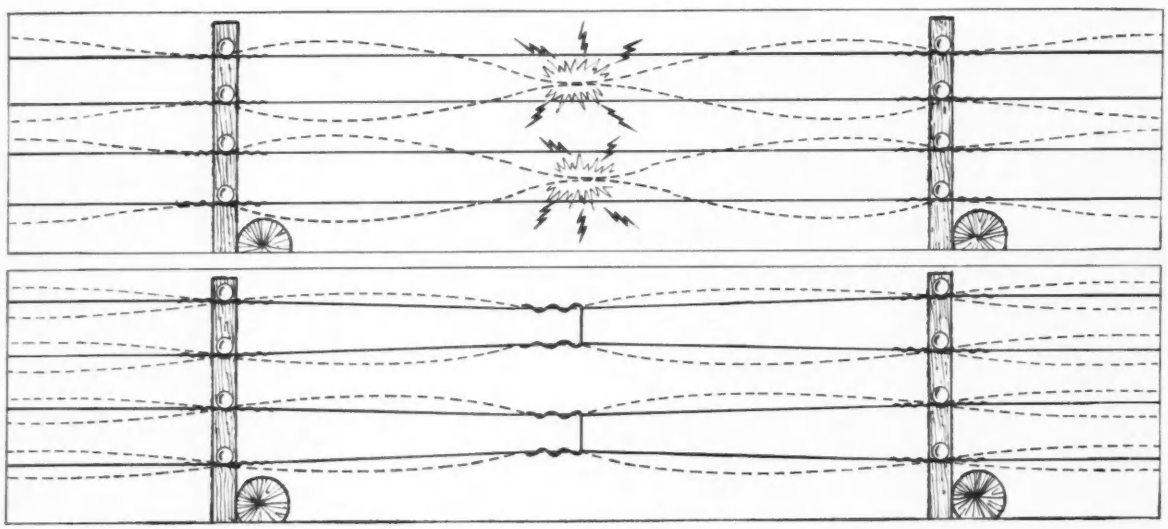
The use of PREFORMED Plastic Spacer Units is another basic part of the new concept in open wire construction. This new concept includes using:

—New high strength line wires for long span construction.

—New PREFORMED Communications Ties to grip the wire at each pole. This adds stability all along the line.

—New PREFORMED Plastic Spacer Units to maintain separation and eliminate mid-span hits in all open wire spans.

These are the reasons why today's open wire lines are stronger, more economical, easier to maintain, and a better value than ever before.



Spacers prevent mid-span hits.

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"Industry Observations"

(Concluded from page 8)

come from the Kremlin, but from a U. S. Dept. of Commerce, O.T.S., release. The article points out that the Russians are doing excellent research work; that their "best workers are extremely prolific and versatile and seem unburdened by administrative and teaching duties;" and that they "are better informed of U. S. efforts than their U. S. counterparts are of Soviet efforts in solid state physics."

The complete 3-page report (#60-21923 SOVIET SOLID STATE PHYSICS) is obtainable from O.T.S. for fifty cents.

Common Cents

OUR telephone bill came to $4.75. With the addition of that iniquitous 10 per cent tax, it should have totalled $5.22½; but we were billed $5.23. The telephone company took the half cent.

In response to our howls of anguish, a kindly commercial manager patted us on the back and assured us that such was the practice throughout the telephone industry. "Don't think we keep the half cent," he burbled. "We pay Uncle Sam the total amount we collect as taxation. But of course we can't bill you an odd half cent; and certainly we must not collect anything less than the ten per cent of the bill that the law requires and the U. S. Treasury demands. What else can we do? After all, it is surely too trifling to bother about."

Trifling, we wondered? There are about 60 million customers paying monthly telephone bills in the U.S.A. Nearly all of that billing is in multiples of five cents — $5., $5.10, etc. —; so it follows that roughly half of them carry an unwarranted one-half cent overcharge. That is, every month 30,000,000 customers pay $150,000 too much, an aggregate annual overcharge of about $1,800,000. Some trifle!

We could forgive these malefactors if they used this huge sum to have themselves a good time, with perhaps an occasional jamboree for the hired help. But, no! On their own shameful admission, they give it to the government, who will use it to pay farmers for not farming, to bribe foreigners for not turning communist, and to subsidize the 700 commercial industries that the government is running in competition with its own taxpayers!

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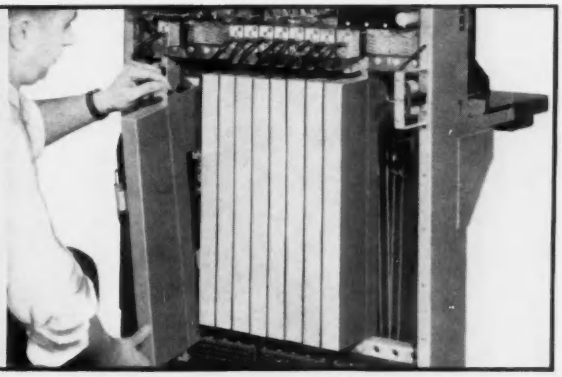

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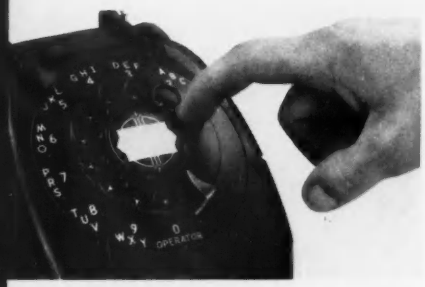
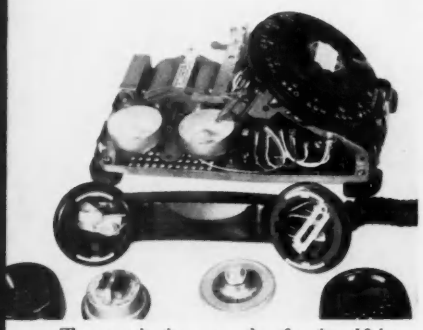
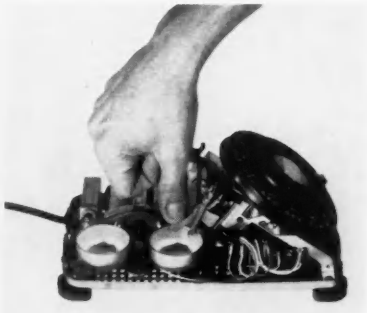


Dialing is dependable, always easy, unusually silent. A new dial mounting slides on and off in a jiffy—there are no screws to loosen.



Transmission speaks for itself in a loud, clear, lifelike way. Sidetone and nearby noises are minimized—line loss is largely overcome.



Installer's hooklock keeps hook down during installation—service man has both hands free. No calls are lost, no switches tied up.

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WASHINGTON OBSERVATIONS

By ROLAND DAVIES & FRED HENCK

- **New concept in long distance telephone rate structure, wide Area Telephone Service, covered in tariff filed with FCC by AT & T with effective date of Jan. 15; supplements message toll, private line.**

NEW CONCEPT in long-distance telephone rate structures — providing unlimited interstate calling within specified areas for a flat monthly rate — was proposed Friday afternoon, Dec. 16, by the American Telephone & Telegraph Co. in a tariff filing with the FCC, to become effective Sunday, Jan. 15.

AT&T, in a press release, said the new service, known as wide area telephone service (WATS), "is designed for the customer who does a large amount of calling to widely scattered and distant points. It supplements both regular long distance, which is charged for by the call, and private line service, which gives a customer unlimited calling between two or more fixed points for a flat monthly fee."

WATS will be available on either a full time basis, 24 hours a day, seven days a week, or on a measured time plan available 24 hours a day, with the basic rate covering 15 hours of accumulated time per month at a flat monthly fee, and charges for additional use made on a per-hour basis.

The customer will pay a flat monthly rate for each "access line" to the telephone company central office, over which he can make as many outgoing calls as he desires. The rate will vary on an upward scale depending on which of the six zonal plans is chosen. Person-to-person, conference, credit card, and collect calls will not be included in WATS, for which the calls must be dialable to any area equipped for direct distance dialing.

The access line may be terminated in any customer station equipment, including call directors, private branch exchange switchboards, and key turrets, as well as telephone instruments. WATS access lines will not be available for incoming calls.

As explained in the AT&T press release, "a customer would have a choice of six prescribed areas that form bands circling his home state. Area boundaries take into account the size of the state involved, as well as the number of telephones in each. Buying the first area, the customer would in effect pay a monthly rate for service to about 10% of the country outside his own state. In the second area, he would get an additional 10% of the country. The remaining four areas would each add roughly another 20% of the country to his calling area. Alaska and Hawaii are not included."

As an example of the rate structure, AT&T pointed out that "A New York City customer could buy full-time calling to first area — nearby states — for $500 per month, or he could buy 15 hours per month for $200, plus $11 for each additional hour. If the New York City firm wished full-time service to the whole country, the rate would be $2250 monthly, or it could make 15 hours of calls per month for $590, plus $33 for each additional hour."

It is expected that the Bell System associated companies will file similar tariffs with their respective state commissions for intrastate service, with timing depending on customer interest and local situations. One associated company, the Michigan Bell Telephone Co., filed an intrastate WATS tariff with the state Public Service Commission immediately after the AT & T filing with the FCC.

In Michigan, the state is divided into four areas — southeast, central, west portion of the Lower Peninsula, and the Upper Peninsula. A customer has choice of service in any one of three combinations — his own area, his own plus one contiguous area, or the whole state. Flat rates are $300 for the first zone, $600 for the second, and $700 for the whole state, while measured time rates are $100, $200, and $225, respectively, with additional hours under measured service costing $6, $12, and $14, respectively.

"The Settlement Question"

INFORMAL reports and some published comments — principally in state telephone association bulletins — that the recently formed U. S. Independent Telephone Association New Services Committee had recommended against Independents' joining in the tariff as connecting companies until further information on settlements is available, immediately led to speculation as to the Independents' future role. It is known there have been recent meetings betwen AT & T and USITA, and that the settlement arrangement proposed was that WATS revenue would be treated the same as

HIGHLIGHTS: — WATS to be available either on full time basis or on measured service, with 15-hour minimum . . . Calls must be dialable to any area with d-d-d service, and outgoing service only is provided for through access line to central office . . . Customer would have choice of six rate bands radiating from whichever of 58 zones in which he is located . . . See numerous advantages both for customer and telephone company . . . Understood USITA "in all probability" will file written "representations" with FCC.

message toll, with the Independents to participate to the same extent as if the revenue were for interchanged message toll business.

On this score, the AT&T letter of transmittal, from Long Lines Department Administrator-Rates & Tariffs L. E. Eastmond, said that each connecting carrier now listed in the separate FCC tariff, which shows all such companies, "is being contacted to determine those who wish to participate in the wide area telephone service offering. In order to make the list of participants as complete as practicable, it is proposed to defer filing revisions in (that tariff) until shortly before the proposed effective date of wide area telephone service, and to request special permission of the Commission to file such revisions on less than statutory notice, to become effective Jan. 15, 1961."

It was understood that "in all probability" the USITA will file "written representations" with the Commission regarding the new WATS plan, presumably with emphasis on the settlement question. The final decision on this, however, is still to be made. It was reported late in December that, numerically, about 60% of the Independents in the nation had signed up as connecting carriers for the new service.

Effect of the new service on the message and private line services of common carriers was, of course, a matter of conjecture. In background material on the subject, it was estimated that a total of $129,000,000 in present Bell System message toll and private line gross revenues could go over to WATS service, based on calculations from business customer samples on present message toll and private line business where the customer would obtain lower rate treatment through WATS. In addition to the WATS revenues, of course, the Bell companies would obtain an estimated $23,000,000 offset in estimated lower operating costs.

Numerous Advantages For The Customer and Tel. Company

WATS is regarded as an effort to provide customers with calls to many scattered points the advantages of private line service for a customer with concentrated traffic requirements. It has been made possible through advances in technology, particularly direct distance dialing and the newer types of central office switching equipment. The service is expected to be attractive to many private line users, particularly those using multipoint private and switched private line systems.

It has been under development for some time, particularly as experience showed that communications are more and more essential to modern business, and that service offerings which permit maximum use of communications at a flat rate, such as private line, are preferred by many customers. The latter acceptance of flat rate service, it is felt, is shown by the continuing interest in expanded extended area exchange services.

While WATS obviously will give the telephone companies an addition to their arsenal in competing with private microwave systems, greatly broadened licensing of which has been authorized by the FCC, telephone company sources declare that the private microwave decision — as evidenced by the lengthy period of developing WATS — was not the primary reason for the filing.

In his letter of transmittal, Mr. Eastmond commented that the rate levels filed "are designed to pass on to customers taking wide area telephone service the operating and other savings resulting from the handling of volume business in the manner contemplated by the offering."

Lower operating cost advantages to the telephone company resulting from WATS are expected to include the following: operator assistance will be generally eliminated, as well as recording and billing of individual calls; maintenance effort will be reduced, as compared with private line; and plant efficiency will be improved by combining services and reducing peak loads. Another advantage is that greater use of the service doubtless will be promoted, since experience is that services which stimulate effective use of communications encourage greater use of the services.

For the WATS customers, advantages are expected to include: lower cost per minute of use, compared with message toll; liberal use of communications is permitted, but with cost control; flexibility that is greater than that of private line is afforded, since the service is offered to all the telephones in the area selected by the customer; high reliability, since the entire toll switching network of the telephone companies is available; and more rapid availability than private line, since no special engineering is required.

The AT&T press announcement pointed out that "Since special equipment is needed to supply the service, it may not be available immediately in every city."

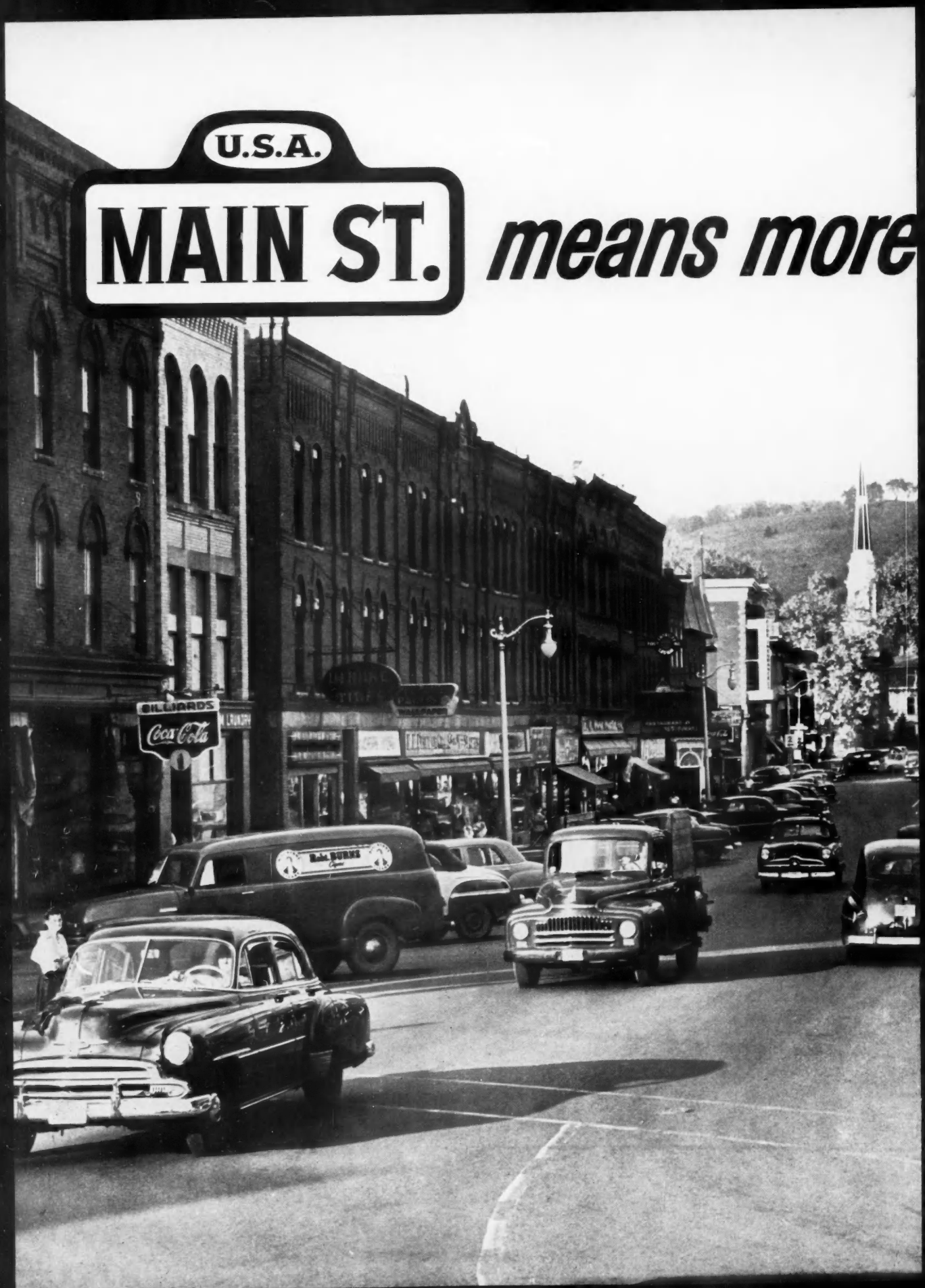
While customer dialing of all WATS calls is contemplated, it is anticipated that operator assistance will be required on some WATS calls until direct distance dialing is universally available. Since the calls requiring operator assistance in message toll service (collect, person, etc.) will not be included, however, operator assistance in WATS is expected to be at a minimum.

58 Originating Zones

A TOTAL of 58 originating zones are set up under the proposal. This includes treating each state as a unit, except that five states — California, Illinois, Michigan, Ohio, and Pennsylvania — are divided into two zones, and two states — New York and Texas — are divided into three zones. The divisions of some states were based on a combination of telephone density and/or size.

Contiguous states would always be included in the first zone, plus any additional zones needed to bring the total up to 10% of the interstate service available. The next four zones would cover approximately 20%, 40%, 60%, and 80% of interstate service available; and the sixth zone would be the entire continental U. S. In each instance, the customer specifying service to a zone also could call telephones in all smaller zones under his basic WATS rate. For example, a customer specifying the third zone

Please turn to page 39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December 15, 1960

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It is now desirable that Lenkurt Electric integrate all of the marketing function with their design, development, engineering, and production activities to provide you with the maximum possible benefits and service from their organization. We are happy to cooperate with Lenkurt Electric in this integration. To this end we are pleased to announce that our Carrier & Radio Staff, who have had the pleasure of serving you, will become a part of the Lenkurt organization on January 1, 1961, and will continue to serve you.

We wish to thank each of you for your increasing purchases of Lenkurt equipment during the last fifteen years. We are confident that your future purchases of Lenkurt equipment will be attended by even greater services and benefits.

Yours very truly,

D. H. Deaver

D. H. DEAVER
President

DHD:ag

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December 15, 1960

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We are fortunate that Lenkurt Electric's established marketing organization will be augmented by Automatic Electric's Carrier & Radio Staff which has ably represented our products, services, and engineering skills for the past fifteen years. The services of this group will continue to be available from existing field offices.

Existing orders not shipped by January 1, 1961, will be transferred from Automatic Electric to Lenkurt Electric and after that date all new orders should be placed directly with Lenkurt Electric. All warranties now in effect with Automatic Electric will be transferred to and honored by Lenkurt Electric.

We welcome this new opportunity to serve you, and by our performance continue to merit the faith and confidence that you have exhibited in our products and our services.

Yours very truly,

John J. Douglas

J. J. DOUGLAS
President

JJD:hb

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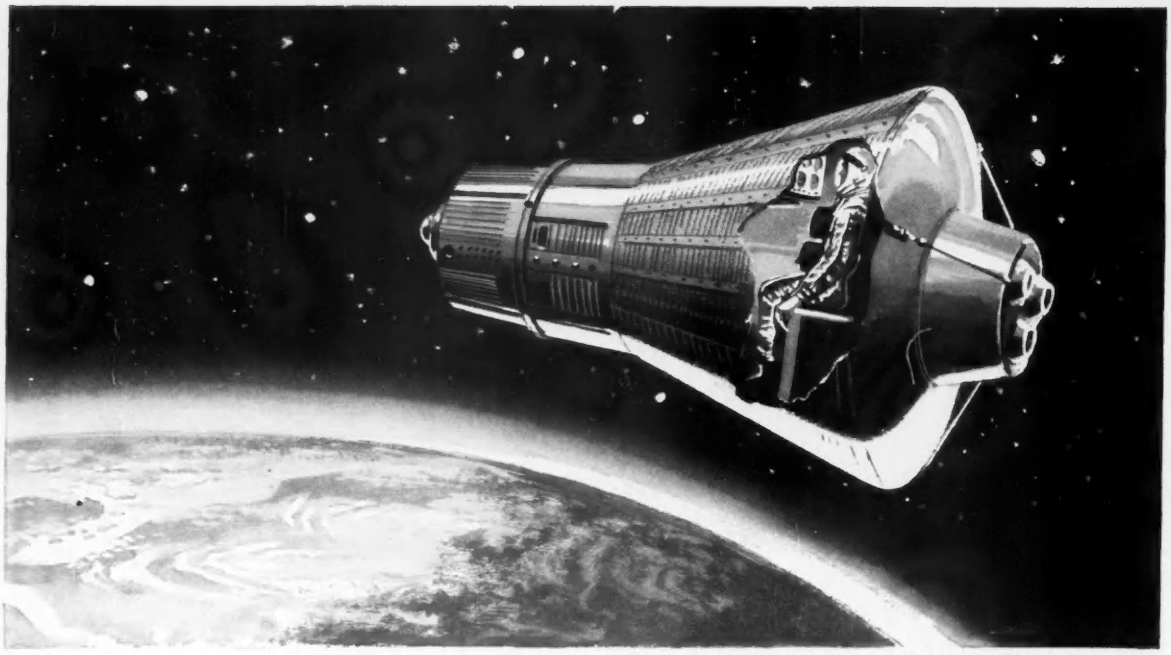

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Keeping track of a man in orbit

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Teletype page printer, tape punch and reader units will be used throughout Project Mercury's global communications network to gather and relay flight data.

EDITORIAL

"Enlightened Regulation"

BEFORE the Holidays we spent a pleasant few hours reading the proceedings of the 72nd annual convention of the National Association of Railroad & Utilities Commissioners (NARUC).

Of course, we were pleased to learn of the election of our newest TE&M Author, Nebraska Railway Commission Chairman Joseph J. Brown, as second vice president of the NARUC. (*See "Regulation and Public Interest," page 25, December 15, 1960 issue of TE&M,* and *"Regulation and Service," page 27 of this issue.*)

However, we were equally pleased to learn from our reading of the NARUC convention proceedings that some of the nation's regulatory commissioners believe regulation should deal fairly upon the basis of the economics of the situation, rather than on the basis of the politics of the situation.

Somehow, as we read along we got the feeling that at last the regulation of public utilities in this country is coming to be what it was intended to be all the time.

Possibly there are still some commissions, or commissioners, of the old school, who still believe the principal mission of a regulatory commission is to hold utility rates and charges down, regardless of circumstances.

It is certain, however, that California Public Utilities Commissioner Peter E. Mitchell, who was named president of the NARUC for the 1961 association year, is not of that school.

In his acceptance speech, President-elect Mitchell emphasized that balancing the interest of the investor and the interest of the consumer is the great job facing regulatory commissioners, and commented that a "*utility that is starved financially becomes a public futility.*"

This thought was given further emphasis in the convention address of the newly-elected First Vice President of NARUC, David M. Brackman of the Massachussetts Department of Public Utilities, when he stated the regulatory bodies are charged with the responsibility of helping maintain the financial integrity of utilities under their jurisdiction as well as guarding against excessive rates.

"Society benefits most," he said, "if regulation serves also to encourage research, innovation, and growth. It fails in its public responsibility when it succumbs to the temptation to sacrifice the future for the present."

The new NARUC first vice president emphasized that "We are aware of the fact that approximately 50% of every rate increase represents the portion that must be paid by the company to the federal government."

"It is the duty of public utilities commissioners," he said, "to bring to public attention these unavoidable increasing cost trends which the public so deplores . . . Increases in costs and taxes must be reflected in rates."

Telephone companies can take heart when outstanding utility commissioners think and talk like they did at the recent NARUC convention. We believe such remarks indicate that politics is taking a back seat in regulation, and that telephone companies will likely receive sympathetic consideration of their revenue problems based on the merits of their case rather than upon apprehension on the part of the commission and its staff over what the public will say or do about a rate increase.

This is all to the good. In our opinion such thinking points up the fact that some of the nation's regulatory commissioners recognize that public interest is not safeguarded if the utility, through denial of fair rate treatment, is not able to provide the quality and quantity of service needed by the public.

When the regulatory thoughts expressed at the recent NARUC convention become parts of the rate-making philosophy of all regulatory commissioners, then, and then only, will regulation become a highly constructive element, doing more than any other factor to guarantee the public good utility plants and service. With that kind of regulation, we know the utilities can finance, expand, improve, and provide a quality of service fully justifying such regulation.

However, we are equally sure that unless the thoughts expressed at the NARUC convention become part and parcel of all regulatory thinking, we may see definite proof of the wiseness of President Mitchell's observation that a financially starved utility "*becomes a public futility.*"

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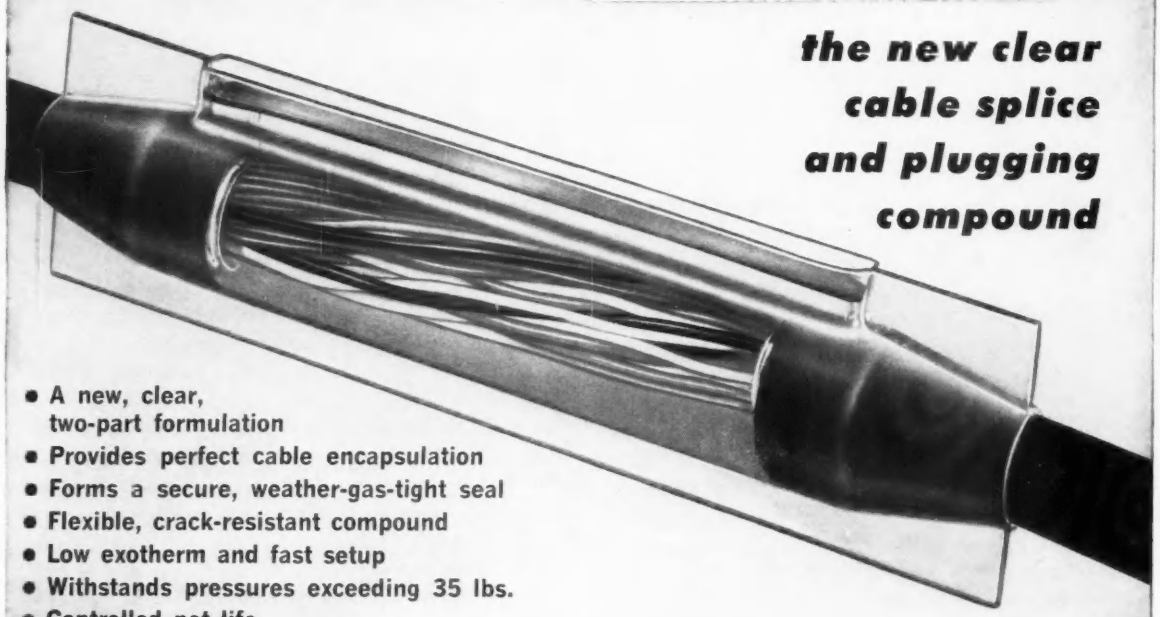

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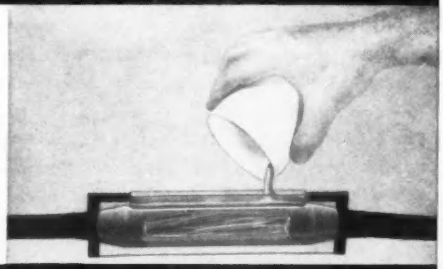

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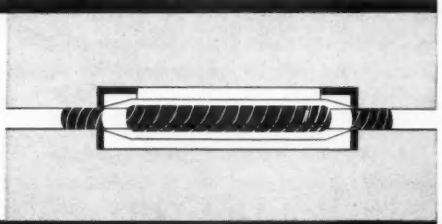

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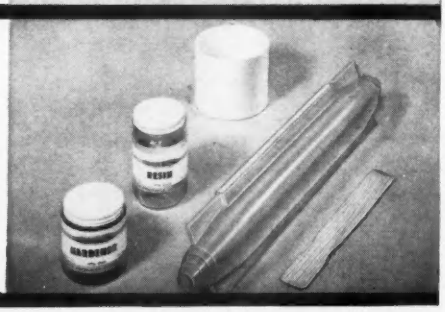

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Part Two of A Special TE&M Report

REGULATION AND SERVICE

A JOINT RESPONSIBILITY

Good utility service over the long pull demands the reverse of expedients. It calls for vision, and wisdom, and foresight. Success, requires good managers and regulators who look to the future, evaluate its changing needs, and make sure the ability and incentives are provided to insure the best result. (Continued from the 12/15/60 issue.)

By JOSEPH J. BROWN*

IN A previous article it was pointed out that the first responsibility of management and regulators is to see that high quality service is available to all. This article will attempt to develop that idea more fully.

There are of course many aspects of regulation by state commissions. These may include rates and earnings, books and records, certificates of convenience and necessity, discrimination, acquisitions and mergers, inter-connection, securities issues, and contracts with affiliates, to name a few.

But each of these is tangential to the main purpose. Each assumes that the first responsibility is being carried out. For example, if railroad service between Smithtown and Jonesville is closed down, then it becomes pointless to fix a schedule of rates between those towns.

The main purpose of regulation is and always has been to assure the customer of service. As the editor of *Public Utilities Fortnightly* has pointed out, we can conceive of utility service with an unreasonable rate. But we cannot possibly conceive of a reasonable rate without service. That would have no meaning at all.

Sometimes people lose sight of this. They begin to think that fixing rates, or limiting profits, is the main purpose of regulation. They forget that the very first regulatory statutes did not authorize or even mention rate fixing. That came later, as a supporting step to help assure broad availability of service to the public.

Mr. Brown is chairman of the Nebraska State Railway Commission.

The final measure of the success of regulation must be found in public acceptance of the services of regulated industry. It naturally follows that all decisions under regulation should be based on the needs and wants of customers. In this, a regulated company is no different from every other company.

Any business depends on public and customer acceptance for its success. The customer is the reason for its existence.

As Theodore Levitt of the Harvard Business School pointed out recently, "The corporation must be viewed as a customer-creating and customer-satisfying organism . . . The organization must learn to think of itself not as producing goods or services but as *buying customers*, as doing the things that will make people *want* to do business with it."

The Customer's Interest

SITTING where I do in Lincoln, I have the strong impression that the most successful companies keep the customer's interest foremost at all times.

The customer today is keenly aware that he lives better than his grandfather lived. And he expects his children to live still better. He is conditioned to this expectation by his daily newspaper, which tells him about research achievements, technological advances, new products, and rising production levels.

There was a time when the cobbler's boy expected to be a cobbler, too, probably living in the same house, eating the same foods, and suffering the same privation

as his father. This attitude of pessimism is now part of the past. The American people show innate optimism today when they talk of their future. They expect it to be better. And it is up to business, including regulated business, to make their expectations come true.

This requires constant effort to improve. And it is heartening to see such efforts being made. It seems to me that the modern utility is very different from the utility of the prewar era. Even its physical appearance contrasts with that of the past. The building front is modern, like that of other businesses. The oak counter and cages have disappeared from most business and ticket offices. Where surroundings were somber, they are now bright, airy and tastefully decorated.

And the service has improved to match. There are many examples. Dial telephone service has replaced manual. Color telephones adorn many homes. Long distance calls are dialed through by the operator or the customer. Railroads have placed in service vista dome

"Good utility service, over the long pull, demands the reverse of expedients. It calls for vision and wisdom. It calls, above all, for foresight . . . This places a premium on careful planning for the future. It calls for a recognition of problems before they become problems."

sight-seeing accommodations, roomettes, slumber coaches and snack bar counters. Buses have installed lavatory facilities and, in some instances, hostess service. Air lines have come from a single motor plane to the modern four-engine jet which carries upwards of 100 passengers, and are in the process of installing a multi-million dollar instamatic reservations system. Public acceptance of these improvements speaks for itself.

But it is not enough to think only in terms like these. It is possible to make broad improvements and still leave the public dissatisfied.

Let us never forget that the public is made up of individuals. Each prizes his individuality. Each has individual problems and expects a modern business to meet his individual wants and needs.

The Antagonistic Customer

AS I HAVE watched utilities operate over the years, I have noticed that almost every antagonistic customer got that way because of some single incident of misunderstanding or unsatisfactory dealing with the company. I used to hear of cases like this arising from overzealous application of company rules concerning the use of certain services or equipment. I am happy to say I hear fewer of these today.

In dealing with the daily problems of individual customers, utility representatives must center their attention on finding ways to satisfy the wants of the individual. The attitude should not be centered on an overly restrictive set of company practices.

In other words, those who deal with customers should aim to find ways to say yes, not respond to certain difficult requests with an automatic no.

For a utility this is even more important than for other business, where the unhappy customer can often walk next door and get the same product. Proper attention to individual customer needs will prevent resentment, which often leads to letters requiring time and attention by regulators.

Three Aspects of Rates

IN CONSIDERING the question of service availability, rate making is vitally important. Rates should be set to help further the aim of making service available to all. It seems to me there are three aspects of rates which merit discussion here.

First, and most obviously, rates should be reasonable. This is easy to say, but not so easy to measure in practical terms. In most cases there is no competing business providing the same services, against which a utility's price levels can be tested.

As a practical necessity, therefore, regulation has centered its attention on profits rather than prices. But the price is still the basic objective. It should be set at a level which makes the service available and useful to the greatest possible number of people. When regulators look at profit levels, they should keep this basic objective clearly in mind. It seems to me that today's demand for utility services speaks clearly as to their success in doing so.

In almost every regulated field, public demand has never been higher. If the public considered utility prices anything but attractive, this would not be true.

Second, it is important that customers find the rates easy to understand. If rate structures become so complex that prices of various services confuse the customer, his confidence in both the utility and the regulator will be quickly undermined. Even worse, if the customer feels there is some inequity or discrimination in the prices he pays, he will resent this keenly. The multitude of tariffs filed in some large railroad and telephone rate cases offers many opportunities for study of possible simplifications. Too many prices, arising from too many pricing steps, is a danger to be guarded against with care.

Thirdly, rates should be such as to promote the greatest possible usefulness of the service and the plant committed to it. The more use of the service, the greater the value of the service, and the more the customer will get for his money. Lower rates for night and Sunday long distance calls help to encourage more usage of the plant during slack hours. Surface and air transportation facilities for passengers are using family-rate fares to stimulate interest and induce increased patronage.

In general, I am convinced that the public is not ordinarily looking for the cheapest utility service any more than it always seeks the lowest priced article in other commodities. People are looking for good service and are willing to pay a fair price for a first-class service.

Oscar Wilde once said that a cynic knows the cost of everything and the value of nothing. Intelligent managers and regulators must watch the costs, but they should pay equal attention to the values.

"Competitive Vigor"

ANOTHER development of recent years directly affects costs and values. This is the marketing effort of many utilities. I see employe publications of many companies and it is refreshing to note how much emphasis utilities now lay on marketing forums and sales competitions. Some show all the competitive vigor of a department store.

This is a healthy development. Sales efforts pursued vigorously can contribute to company earnings, and so reduce the frequency of rate increases. Thus these efforts serve to partially protect the basic rate-payer from the inroads of inflation. This clearly helps to increase the number of people who can afford to buy the service.

"That Excise Tax"

I REGRET to point out that the excise tax on transportation and telephones has the reverse effect. By increasing the total price to the customer, this tax reduced the number of people who can and will buy the service.

This tax began as a wartime emergency measure, aimed at restricting unnecessary use of these services and providing needed wartime revenue. Major warfare is now 15 years past. Yet the tax remains.

Any fair-minded person would agree that it is unfair to tax vital public services on the same basis as luxuries like liquor, tobacco, jewelry and furs. This is the most inequitable feature of the entire tax structure today.

The Nebraska Commission recently adopted a resolution urging that this tax be dropped. We sent this resolution to the Nebraska delegation in Congress, national government leaders, and all other state regulatory commissions, hoping to stimulate the removal of this burden on the users of these services.

A few people talk of transferring the 10% telephone tax to the states. This would just perpetuate the discrimination. What other service or commodity is burdened with a 10% sales tax by a state? I know of none. Nor is there any reasonable cause to single out the telephone users for such unfair treatment.

This tax is simply an expedient — the kind of expedient which is not in the long-term interest of the consumer. Good utility service over the long pull demands the reverse of expedients. It calls for vision and wisdom. It calls above all for foresight. This is perhaps even more true of utilities than of other industry.

The reason lies partially in the length of time required to engineer, manufacture and install utility plant. Many months from the time engineering begins on a new piece of plant until it goes into service are required.

Service will go downhill fast if it is not in use when it is needed. And costs will go up if it is in use before it is needed. To further complicate the matter, the customers don't stay put. They move. And customers change their requirements for service.

All this places a premium on careful planning for the future. It calls for a recognition of problems before they become problems.

Commissioner Alan S. Boyd of the Civil Aeronautics Board said recently, "Our major effort should be to foresee problems and outline solutions . . . before they happen, rather than running along behind trying to catch up with the problem to see which way it turns."

Success in this effort requires managers who apply close analysis and careful judgment to forecasting where cities will expand and what services the customer will want in the future. It requires managers who plan so money will be available when it is needed.

And success calls for regulators who also look to the future, evaluating its changing needs, making sure the ability and incentive are provided to insure the best result. — *To Be Continued.*

"Rates should be such as to promote the greatest possible usefulness of the service and the plant committed to it."

Public Relations In the '60s

PUBLIC RELATIONS GUIDEPOSTS FOR 1961

- **During the 60's, more than ever before, the attitudes and opinions of the various "publics" will determine the future of the telephone company.**
- **Poor public relations — or merely passive, inactive public relations — on the part of even the smallest telephone company will mean disaster.**
- **Regardless of the size of your company you need a plan of public relations action, and your plan of action should be keynoted by the word "inform."**

By R. L. POST*

THE economists tell us that we are on the threshold of prosperity as we have never known before in America. As the "war babies" of the early 40's become part of the buying public, opportunities in this business of ours become almost unlimited. Experts are forecasting an astounding increase in the spendable income of the average family during the 60's They also see the gross national product continuing to increase to new highs — perhaps to $700 billion by the end of the decade.

But my purpose is not to merely go over what the experts have already written about the *sixties*. The *big question is how we and this industry of ours are going to fit into this picture of the soaring sixties* that has been painted so beautifully for us by the economists. Will our prosperity parallel the prosperity of the nation? Or, will the telephone industry fall behind?

How we prosper in the *sixties* will depend upon *how squarely we meet* the *challenge* of this decade.

The Management Job

THIS challenge calls for telephone company managements to take a courageous course of action that will include a great deal of long range planning and the expanded use of management skills so necessary in running the business.

There will be no place in the telephone industry during the 60's for the telephone company manager who cannot accept change — because the telephone company that is operated in the 60's like it was in the 40's or even 50's will not be able to rise up to the challenge of the new decade.

We're in a period of change because the very makeup of the people in this nation is constantly undergoing change. The population is shifting, altering in character, and those who control the purse strings are ever changing their ideas about what they will buy with the spendable dollar. Will it be spent on a big car or compact car? Hi-fi or TV? Boat or movie camera? Deep freeze or clothes drier? Just because there will be more consumers with more dollars to spend doesn't mean necessarily that they will spend those dollars with us.

I assume that many industry members think that today they are getting as large a share of the customer's spendable dollar as in years past. Rates for telephone service have been raised several times since the war and — after all — we have all become "merchandising conscious" in the last few years. However, if you think you're getting your share of the customer's spendable dollar, you're likely to be mistaken, as we were recently.

We secured from the Department of Commerce the per capita personal income for 1929 and 1959 for each of the four states in which we operate. Using government estimates for the average number of persons per family, we figured average family income per state.

We then computed the average cost for telephone serv-

*Mr. Post is director of public relations, Southwestern States Telephone Co., Brownwood, Texas.

ice per user, or the total revenue we retained per telephone, including exchange service, toll service, miscellaneous service, etc. It can be presumed this figure would be the closest approximation of how much the average family spent for telephone service.

I'd like to tell you of the results for Oklahoma. In 1929, average family income amounted to $1,930 while this figure had increased by 1959 to $5,890. This is an increase in family spendable income over this 30-year period of 205 percent.

What happened to our revenue per telephone in 30 years? In Oklahoma, it increased from $35.43 to $91.93, or an increase of 159 percent. In other words, while the average family spendable income was increasing in Oklahoma by 205 percent, our share increased by only 159 percent.

To put this another way, 30 years ago the average family in Oklahoma was spending 1.84 percent of its spendable income on telephone service, while in 1959 this average Oklahoma family was spending 1.56 percent of its spendable income with the telephone company. Will our share of the dollar continue to decrease during the 60's? By 1970, nine out of 10 families in the United States will have discretionary income. But, will they be spending it with the telephone company?

The Decade Ahead

THE decade ahead is going to be tough. The competition is going to become more intense. Not only for the spendable consumer dollar, but for the investment dollar too. The tight money of today may be only the beginning. Look at the great amounts of money that will be necessary in the 60's to finance the mammoth highway building programs, the hundreds of thousands of new homes, and the necessities for a growing population.

It has been estimated that every time a family moves into an urban area there is a necessary investment of from $20,000 to $30,000. In other words, financing amounting to that sum is required for each new family in order to furnish the new homes, sewerage systems, communications facilities, highways and streets, shopping centers, etc.

When you figure that there will be 35 million people added to the population of the United States during these 10 years, you get some indication of the tremendous capital demands during the 60's. Money for financing will become next to impossible to secure for any telephone company whose earnings are inadequate or whose management philosophies are not flexible enough to stay in tune with the times.

Yes, the sixties will be a decade of competition. Unfortunately, many telephone companies will not rise up to the occasion and will thereby become victims rather than beneficiaries of this new era.

The Public Relations Job

WITHOUT minimizing the importance I have given to such things as long range planning, better management skills, adequate earnings, and the like, I want you to consider an aspect of the telephone business which may well make the difference between success or failure in the 60's — and that is *public relations*. During the decade ahead, more than ever before, the attitudes and opinions of the various "publics" will determine the ultimate future of the telephone company.

During the 50's, the term "*public relations*" came into prominence as we began to take a new look at our customers. No longer were we merely "order takers" as the shortages of equipment which resulted from World War II were alleviated. We caught up — and didn't have the war to blame for service deficiencies.

The public realized at that point that telephone subscribers no longer had to sit back and be denied service they desired and were willing to pay for. In other words, the customer status changed, so to speak, from "servant" to "master," and the telephone company found that its relations with the public must be good in order for the company to stay in existence.

Public relations went through this evolution during the 50's. We all became public relations minded, at least to the extent that we began to realize the great power the public can exercise on the environment in which the telephone company — large or small — must operate.

But, what about the 60's? Will public relations continue its evolution? What effect will public relations have on the telephone business as it faces the challenge of the decade? Can public relations effort increase earnings and aid in meeting competition not only for the spendable consumer dollar but for the financing dollar as well?

I sincerely believe you will find public relations taking on new and increased importance in the telephone business during the 60's. The techniques of public relations will be changing and it will be imperative that the telephone company manager keep up with them.

Through strong public relations, the telephone company will find prosperity as we have never seen it before. Poor public relations — or merely passive, inactive public relations on the part of even the smallest telephone company — will mean disaster. The public will not put up with a telephone company that doesn't explain its policies and actions and that doesn't make its public a part of its day-to-day operation.

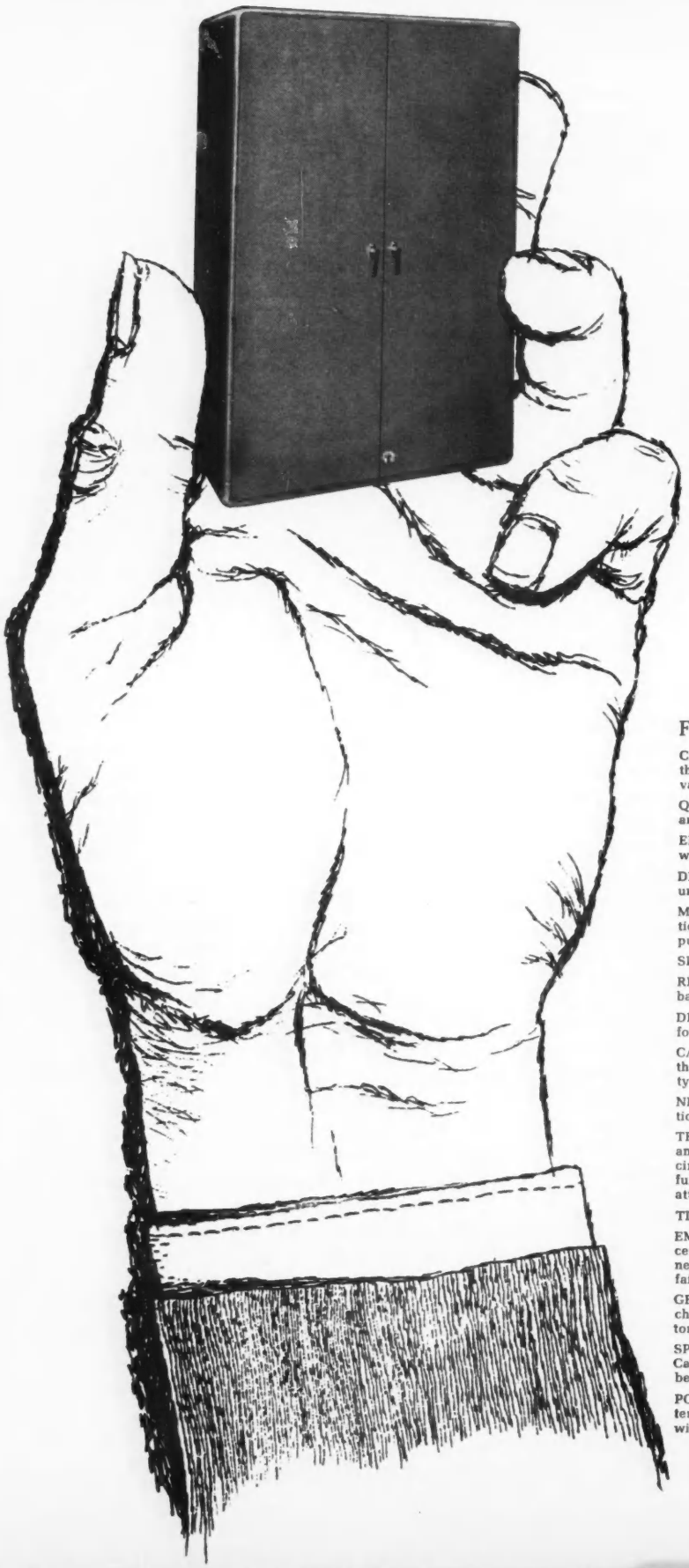
So let's take a look at what we can do, public relations-wise, to meet the challenge of the 60's.

Recognize Your "Publics"

FIRST of all, may I suggest that you recognize your publics — and you have many. Define your various publics and get to know them well. You must know who your public is if you are going to develop a program of public relations action. And, don't get the idea that all your publics can be lumped into a "*John Q. Public*," — mister average subscriber. Let's look at some of your publics and sub-publics.

Your subscribers comprise your largest public, but let's break down this public to more specific publics

Please turn to page 34



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STROMBERG-CARLSON
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"Public Relations In The Sixties"

(Concluded from page 31)

you must reach for successful public relations. Your principal big toll users of course, are a specialized public of utmost importance. Then, you have your residential and your business subscribers — two separate publics. Your PBX subscribers are special publics. Your party line users make up a public which needs special attention. Each of these subscriber publics must be cultivated during the 60's as never before.

Another important public is your employes group, as what employes do and say about their employer permeates the subscriber publics. It has been proved that public attitudes are reflections of employe attitudes, since the average subscriber learns more about the telephone company from employe contacts than from any other source.

Your employe public might be subdivided into management and non-management employe publics. Your employe publics would also include any unions which might represent any segment of the employe group. During the 60's, your employe public, regardless of size, may be the key to unlock major public relations problems in your company.

The third big public is the public of key thought leaders in your community. This, we could divide into such sub-publics as city and county officials, bankers, church pastors, educators, newspaper editors and publishers, and the list could go on and on.

You must remember that these are the people who mold public opinion. They are the leaders — and the followers listen to opinions of the community leaders. Any public relations program must recognize each group of key thought and opinion leaders and must cater to them.

You have a fourth public if there are other owners in your business. Our company has better than 10,000 stockholders, a most important public without which we could not be in business today: — Your owners, whether they be few or many, are a public which must be included in your public relations plans for the 60s.

An Important Word — "Inform"

ONCE you define your publics, you are ready to plot your course of action for the 60's. And regardless of the size of your company, you need a plan of public relations action for the period ahead, because without public approval your environment and climate will not be conducive to profitable operation.

Your plan of action with your various subscriber publics should be keynoted by the word — "inform." Yes, inform: — inform of your every action, policy, future plans — of any action that will affect the subscriber and his telephone service.

Inform not only through the written word, but inform "in person" by planning more central office visits and open houses during the new decade. Show off your operation and your business to advantage.

Your plan of public relations action with your employes will also include providing a great deal of information about the company, its operation today and its future tomorrow. Use the employes to spread the news about your company.

Encourage your employes to take a part in community activities and to exercise their American right at the polls as good citizens. Your company won't be thought of in the community as a good corporate citizen if first your employes are not good citizens of the community.

Good corporate citizenship goes even further; It means contributing a fair share in time and money toward worthwhile charities, as an example. In the 60's, no business will be able to isolate itself from the life of the community and expect to continue reaping community benefits.

Advertising

YOU don't want to forget advertising as an integral part of your public relations in the 60's. I personally don't see how a telephone company can exist in this day and time without advertising. True, in the smaller towns, your advertising media are rather limited. But, don't forget the country weekly newspaper. Most of your subscribers probably read a metropolitan paper too, but they are inclined to read the country weeklies closer and to absorb its advertising messages.

During the 60s, you are going to need to get your message across through strong newspaper ads. Incidentally, the USITA's Advertising Committee, of which I'm a member, works closely with the telephone Advertising Institute to provide newspaper mats and advertising to member companies at an extremely reasonable cost.

Our company subscribes to this service. It is the real answer to the problem of advertising for the smaller company, as ads are available in sizes ranging from one column by five inches to three columns by 10 inches. If you want more information on this service, write to USITA.

The Telephone Advertising Institute also makes available other advertising aids especially helpful to the smaller telephone company operator.

Only by providing this material to other companies all over the nation is the Advertising Institute able to exist on such nominal fees. But whether you use their material or material of your own, never underestimate the power of advertising. After all, nine out of 10 purchases made today can be attributed directly to advertising. This is not likely to decrease any during the 60s.

Actually the most amazing thing about your public relations in the 60's is that they won't cost you much, because — after all — public relations is more of a frame of mind, a philosophy of business, than anything else. Alienate your company's policies and actions to your publics and then tell your story to those publics in the most forceful, dramatic ways possible and let your good public relations catapult your company to the heights of prosperity during the 60's.

— Mr. Post presented this address at the 1960 convention of the Oklahoma Telephone Association.

SUB-HARMONICS and OVERTONES

By C. D. EHINGER

Pres., Citizens Telephone Co., Decatur, Ind.

"Fundamentals of Simplex & Phantom Circuits"

Jim Desmond continues his discussion concerning simplex circuits, phantoms, composite sets, and types of signalling.

"NOW, KID, let me show you why these telephones T_3 and T_4 can carry on a conversation with each other and not interfere with T_1 and T_2. If you will look at my sketch you will see that the voltages across the secondary of the coil also appear across the primary of the coil. However, they are equal and opposite *in phase*. In other words, they are identical and are bucking each other and, therefore, cancel out and cause no current flow through T_1 or T_2. By the same token, when T_1 and T_2 are talking to each other, T_3 and T_4 will not be able to hear the conversation because the current paths for T_1 and T_2 follow the path I have shown in *Figure Three*."

"By golly, Jim," the Kid spoke up, "that's pretty neat. You mean that I can have two conversations on one pair of wires and the two conversations will not interfere with each other?"

"You're so right, Kid!"

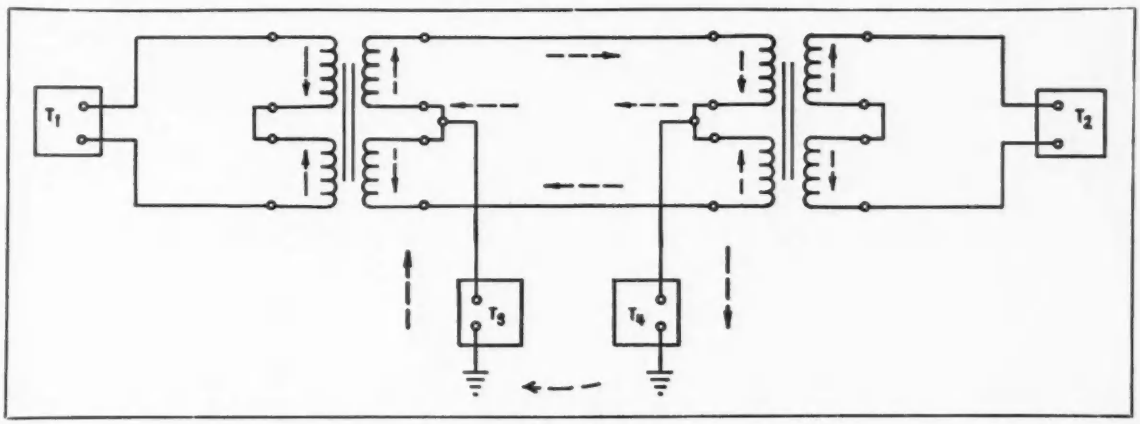


FIGURE FOUR.

"Well, Jim — if what you say is OK, why don't we use that scheme between our Aurora and Cook exchanges? We have all kinds of circuits that are being used as EAS

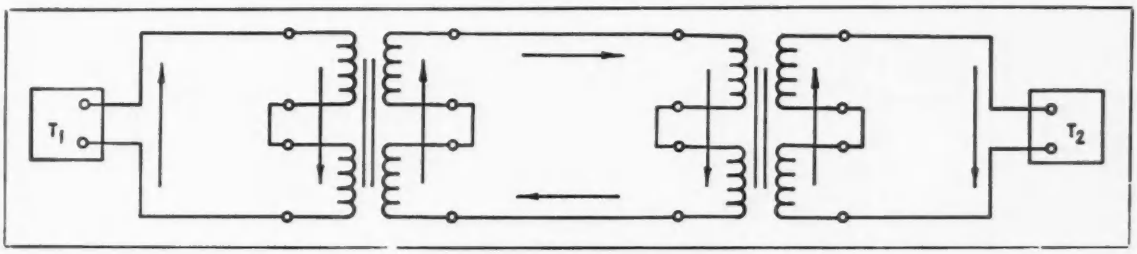


FIGURE THREE.

trunks between the two exchanges and yet Jim and I have to snag one of them to use as an order wire whenever we are working at each exchange. We sure could use some kind of circuit just for maintenance purposes — don't we have a spare simplex, or something, so that we could use this scheme?"

"Out Of A Child's Mouth"

JIM looked at the Kid and started to speak — hesitated — and finally spoke. "You know, Kid, maybe there's something to the saying 'out of a child's mouth' — Chet Hearne has been after me for months concerning the fact that we don't have any kind of order wire between those exchanges and either have to steal some toll circuits or some interoffice exchange trunks and, come to think of it, we do have a circuit where a simplex leg isn't being used. By golly," Jim rubbed his chin rather thoughtfully, "we could rig up a couple of EE-8 Signal Corps mag telephones and give you an order wire until such time as we have enough circuits to spare on a full time basis. Maybe I should discuss fundamentals with you more often!"

The Kid squirmed with delight and a self-conscious smile traveled across his face — "Glad I had a *useful* idea for once," he muttered.

Jim picked up his paper and pencil again. "Well, getting back to the phantom circuits — let's say that we have two simplex circuits that are not close together physically but terminate in the same point at both ends. By 'not close together physically' I'm asking you to assume a rather ridiculous situation where one of the simplex circuits is on one road and the other is on a road a half-mile or a mile away from it — in other words they are not on the same crossarm or even on the same pole lead, but they do terminate in the same spot at both ends" — Jim sketched on paper (See *Figure Five*).

Two Simplex Circuits Together

"NOW, instead of using the ground return for the simplex circuit, why not go a step further and make it a metallic return," Jim said. "I can put two simplex circuits together and I again have the situation which prevailed in my sketch in Fig. 4 with the only difference being that I am using a fully metallic circuit for T_3 and T_4 rather than the ground as a return path as I did in the simplex circuit. Do you follow me, Kid?"

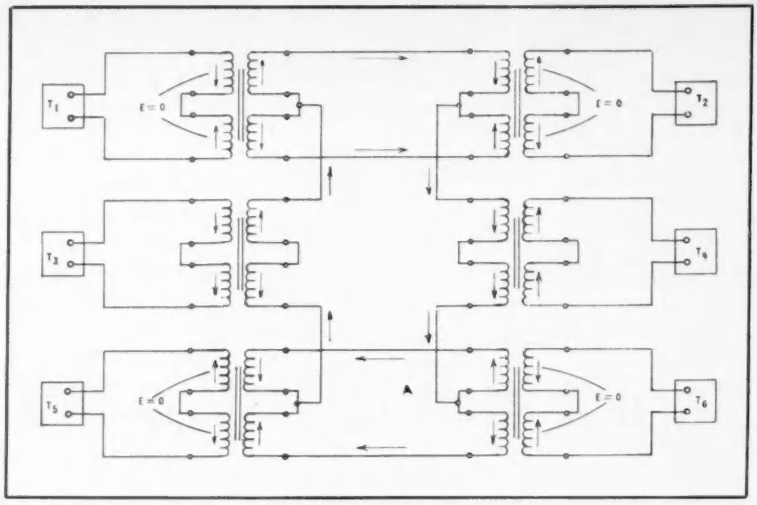


FIGURE FIVE.

The Kid nodded — "Yes, that's simple enough. You have just taken two simplex circuits rather than one and you again have a talking path."

"That Kid, is the nubbin of what we call a 'phantom' circuit. In this case we actually have only two circuits, but we have obtained a third, or 'phantom' circuit, merely by means of simplexing each circuit, and we can have three simultaneous conversations going without any interference with each other. The phantom circuit does not interfere with conversations on any of the two side circuits because the voice currents split equally down each side of the line just as they did in the simplex circuit where I sketched the current flow separating equally into each side of the pair. Keep in mind now, Kid, that I have used a special case here wherein each conductor of either side circuit is an exact mate for the other conductor and is balanced."

"What do you mean — 'balanced' — Jim? That term always sort of floors me."

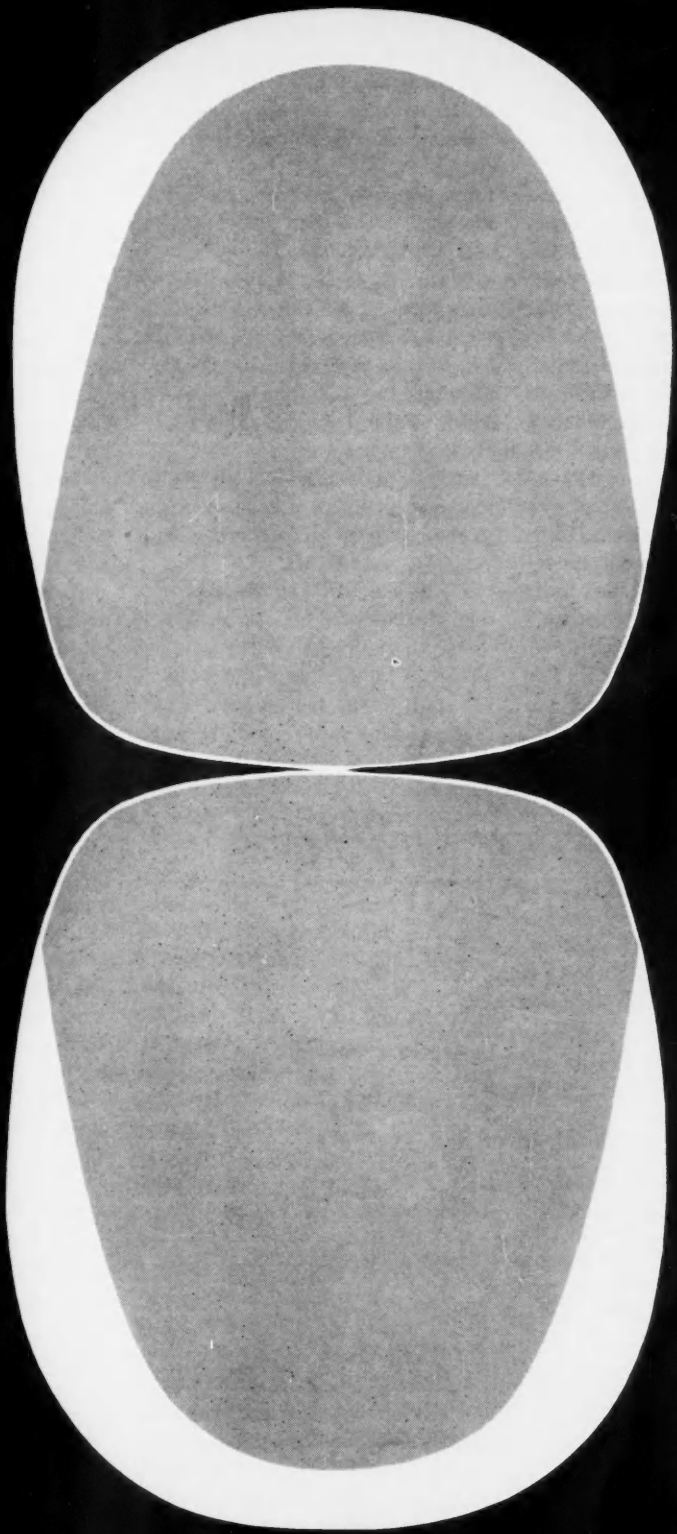
"Well, Kid, in this particular case I mean that each wire not only has the same dc resistance as the corresponding wire, or conductor, that makes up the pair, but also has equal exposures to ground and other objects, so that its capacity to ground is identical to its mate. Don't forget that I'm also talking about a very remote situation here — I specifically said that each circuit was separated from the other circuit by quite a wide distance — a mile or so."

"Yeah, I caught that, Jim. Is that what you have to do when you make phantom circuits?"

Phantom Circuits Must Be Economically Feasible

"OF COURSE not, Kid — that would ruin the whole point and reason for phantom circuits — if we had to build two separate leads in order to pick up phantom circuits there would be no economy at all in such a situation. We actually put our four conductors for each phantom group on the same crossarm of a lead so that we can easily pick up these extra phantom circuits without spending a great amount of extra money. Now, when we actually put these four conductors on the same crossarm, we bump into a little different problem than we do when we would have the unusual situation of two pairs widely separated. The difference is that we now have the case where it is much more difficult to arrive at the balance.

"In other words, it is quite a dif-



TALKING SIZE?

These illustrations are actual size tracings of TWO Ericofons superimposed on an actual size tracing of the next smaller phone on the market!

The Dynamic Force In The Telephone Industry

NORTH ELECTRIC COMPANY

60T-22

ferent problem to have each conductor of the group maintain the same capacity to ground and to each of the other three conductors, keep the same dc resistance in all four conductors, have the same exposure to any foreign ac voltage, and so on. In order to keep such balance for all four conductors, we transpose not only each pair of the group, but the enitre group in an orderly and set manner. These are called 'transposition schemes' and must be followed quite carefully and accurately in order to have circuits that do not have excessive crosstalk and noise."

"Actually, the transposition schemes allow each conductor to be exposed to each other and to unwanted voltages in such a way as to allow any induced noises to cancel out. This wouldn't be the case if we simply strung four conductors down a pole line and kept the same pin position for the entire length."

The Kid interjected — "Frankly Jim, I don't follow you at all on this transposition scheme business, and I don't see how flipping them around on the crossarm will help make our circuits quiet and elminate crosstalk."

Transposition Scheme Theory Is Complex

"I REALIZE that, Kid — and I haven't done a very good job of explaining it to you. Transposition schemes are a pretty complex affair and a lot of research went into working out the various schemes which we use. Just accept the fact — right now — that they do work, and when you're a little further along in the business I'll go into some of the theory of transposition schemes with you."

The Kid sighed — "By golly, Jim, this seems to be typical. I have a pretty good idea of what a phantom circuit is, now, but you've brought up some things that I hadn't even thought about before and make me realize how many tricky items there actually are in this telephone business. Each time I finally nail down one item and understand it, I find three others that I'm going to have to learn — and didn't even know about before."

Jim laughed — "Don't worry about it, Kid — you have lots of company and when the time arrives that you know everything about the technical side of the telephone business I can tell you that you will be the only man in captivity who ever managed to turn the trick. It's time to quit now, but, tomorrow, I'll tell you a little bit about composite sets, E&M signalling, and some other types of signalling."

Jim put his papers away and the Kid made preparations to routine switches with the teacart. — *C. D. Ehinger.*

Any comments, criticisms, or suggestions for future topics? Address all correspondence to "Sub-Harmonics and Overtones," Telephone Engineer & Management, 7720 Sheridan Road, Chicago 26, Illinois.

"Worth Writing For"

Telephone Cable

BOOKLET from The Okonite Co., Kennecott Wire & Cable Div. gives data on unit type, paired exchange telephone cable, including specifications, mechanical characteristics and construction details, and description of protective coverings. Specifications' section includes charts presenting data on (1) standard types of cable; (2) color code; (3) twist of pairs; (4) density of cable; (5) dielectric strength; (6) conductor resistance; (7) transmission loss; and (8) guarantee on defective parts.

To obtain your copy write *Advertising Manager, The Okonite Co., Kennecott Wire & Cable Div., Dept. TE&M, Phillipsdale, R. I.*

Starlite Sales Kit

STARLITE telephone sales aids, promotion tips and display ideas have been incorporated in a new sales kit which is now available from Automatic Electric Sales.

An attractive jacket-folder contains all the sales material needed to introduce the new phone to subscribers. Included in the kit are radio commercials, newspaper ad mat, display posters, publicity release and photo mat, and envelope stuffer.

A promotional guide gives tips on how to use the sales material as well as offering ideas for special occasions. The promotion guide also contains a section on special Christmas promotion ideas.

Kits may be obtained by writing the *Director of Sales Promotion, Dept. TE&M, Automatic Electric Sales, Northlake, Ill.*

National-Standard Brochure

"THE STORY of High Quality Specialization," a new 12-page two-color bulletin produced by National-Standard Company describes the company's five manufacturing divisions and its full line of specialty wire and metal products. The new bulletin tells how National-Standard applies research and engineering skill to diverse industries such as automotive, appliances, machinery, electronics, office equipment, rockets and aircraft.

Products described include specialty steel spring wires, Copperply copper-coated steel wire, Athenia flat strip steels, Reynolds wire cloth, Cross perforated metal.

Copies are available free from *Dept. RDT, National-Standard Company, Niles, Mich.* In Canada, write to *National-Standard Company of Canada, Ltd., Guelph, Ont.*

Engineering Design Manual

TA Manufacturing Corp. has developed a valuable 76-page illustrated Engineering Design Manual (Bulletin 212 G) which offers a compiled listing of materials and specifications, recommended application and the latest technique for mounting tubing, wiring and similar hardware. Bulletin also includes a description of the complete line of clamps, brackets, shims.

For your free copy of TA Bulletin 212 G write: *TA Mfg. Co., Engineering Dept., Dept. TE&M, 3607 Alger St., Los Angeles 39, Calif.*

Washington Observations

(Concluded from page 19)

also could call telephones in zones one and two.

The New Tariff

THE WATS filing provides for a new FCC tariff 248. Other than the rate structure and the restrictions on the collect, person, etc., calls, it is similar to the message toll tariff. For example, similar provisions are included regarding the liability of the telephone company, foreign attachments, use of service for unlawful purposes, Data-Phone service, recording of calls, and voice silencers.

On operator assistance, the tariff provides that "if facilities are not available for dial completion to the called station, (a call) placed with an operator by using (the customer's) access line and by giving the called telephone number and his access line number" is included. "The call may also be placed with an operator in the same manner if the customer for any reason cannot reach a dial station."

Under limitation of service, it is provided that WATS "is not represented as adapted for connection to other services of the telephone company. The service contemplates the provision of satisfactory transmission only between the access line from which the call originates and the called station. The access line will be terminated only at a customer's premises located in the same state or state subdivision as that for which the rate applies."

Under the tariff, a separate rate structure is shown for each of the 58 zones. Some typical examples would include the following:

Maine — zone 1, including the other New England states and two of the three New York zones, $900 full time, $330 measured time, $18.50 per additional hour; zone 2, ranging to Maryland, the District of Columbia, and northern Ohio, $1200, $385, $22; zone 3, to South Carolina, Michigan, and Kentucky, $1600, $445, $26; zone 4, to Arkansas, the Dakotas, and Florida, $1800, $490, $28; zone 5, to Montana and New Mexico, $2050, $540, $30.50; and zone 6, $2325, $623, $34.50.

District of Columbia — zone 1, to both Pennsylvania zones, Virginia, West Virginia, and New Jersey, $500, $200, $11.50; zone 2, to two New York zones, southern Ohio, Connecticut, and North Carolina, $800, $300, $17; zone 3, to Georgia, Illinois, and all of New England, $1100, $370, $21; zone 4, to Oklahoma, Louisiana, and Minnesota, $1500, $430, $25; zone 5, to New Mexico and Montana, $1850, $500, $28.50; and zone 6, $2250, $590, $33.

Florida — zone 1, covering Southern Bell territory except Kentucky, $1100, $370, $21; zone 2, to southern Ohio, Arkansas, and Deleware, $1400, $415, $24; zone 3, to Oklahoma, Missouri, northern Ohio, and New Jersey, $1700, $460, $27; zone 5, to Arizona, New England, and Colorado, $1850, $500, $28.50; and zone 6, $2250, $590, $33.

Northern Illinois — zone 1, four contiguous states, excluding Missouri, $700, $270, $15; zone 2, to Minnesota, both Ohio zones, Tennessee, and Missouri, $900, $330, $18.50; zone 3, to Georgia, Oklahoma, Pennsylvania, and North Carolina, $1200, $385, $22; zone 4, to South Carolina, New York, District of Columbia, and the Dakotas, $1400, $415, $24; zone 5, to Florida, New England, Wyoming, and New Mexico, $1500, $430, $25; zone 6, $2000, $530, $30.

Southern California — zone 1, to New Mexico, Utah, and Oregon, $1200, $385, $22; zone 2, to Idaho, western Texas, and Wyoming, $1500, $430, $25; zone 3, to Texas, Iowa, and the Dakotas, $1800, $490, $28; zone 4, to Indiana, Mississippi, and Wisconsin, $2000, $530, $30; zone 5, to Florida, Ohio, and Virginia, $2200, $570, $32; zone 6, including the District of Columbia, Pennsylvania, and points northeast, $2275, $600, $33.50.

On allowance for interruptions, the tariff provides that for full time WATS "no credit is allowed for interruptions to the access line of less than two hours. Interruptions to the access line of two hours or over not due to the negligence of the customer are credited to the customer at the proportionate monthly contract charge in hourly multiples for each hour or major fraction thereof of interruption.

"On measured time service, if the customer has not used the minimum time period of 15 hours during the monthly contract period, credit is allowed for interruption of the access line of 24 consecutive hours or more. Interruptions to the access line not due to the negligence of the customer are credited at 1/30 of the monthly charge for the access line for each 24 hours or major fraction thereof of interruption."

In recent weeks, considerable press interest has been shown in WATS, since word of it came to the nation's press associations. AT&T had virtually no comment until the recent filing, other than to report that it was working on such a plan. — *Roland Davies & Fred Henck.*

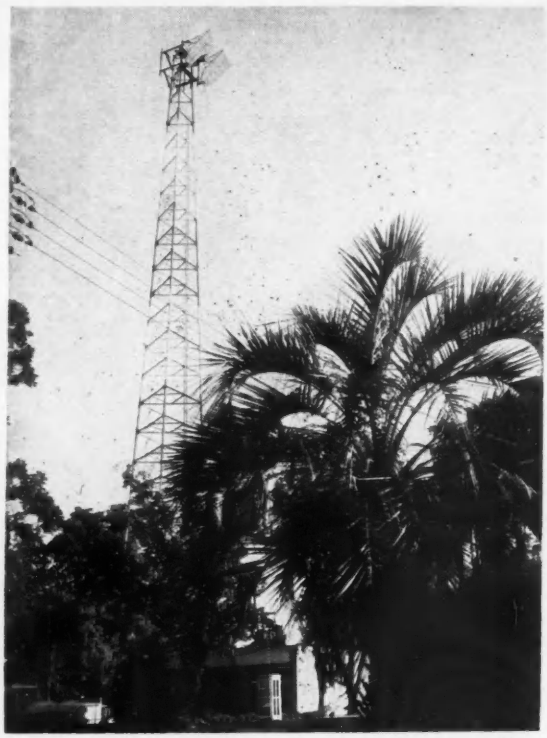
United Boosts Dividend, Plans 2-for-1 Split

DIRECTORS of United Utilities, Inc., Kansas City, Mo., last month voted an increase in the quarterly common dividend rate and recommended a 2-for-1 split in the common stock.

A quarterly dividend of 40¢ a share was declared, payable December 31 to holders of record December 14. The company has been paying 35¢ a quarter. The December payment brings the 1960 total to $1.45, compared with $1.36 in 1959 and $1.25 in 1958.

It is the intention of the board to maintain the new dividend rate, according to R. Crosby Kemper, Sr., board chairman. If the shareholders approve the 2-for-1 split, the board plans to initially set the annual dividend on the split stock at 80¢ a share.

At the regular annual meeting on April 4, stockholders will be asked to approve an incerase in the authorized common stock to 10 mililon shares from three million and to reduce the par value to $5, from $10, a share in order to effect the 2-for-1 stock split.



Monticello, 26.4 miles northeast of Tallahassee, Fla., is the interconnection point between Southeastern Telephone Company's East Florida District and the Southern Bell TD-2 System. Three super groups will be interconnected at super group frequencies over 2200-feet of video cable.

Service Channel at Microwave RF rack is used by COE Supervisor DAVID ALLBRITTON in Tallahassee to confer with Monticello, Southeastern's microwave toll terminal for its East Florida District. At Monticello Southeastern interconnects at super group carrier frequencies with the Southern Bell TD-2 system.

Compatible L-1 Carrier Equipment Used To Complete Microwave Carrier Expansion

SOUTHEASTERN Telephone Co. this month completes its second microwave carrier expansion in a year to keep pace with growing toll traffic from Florida's capital city area.

Expansion has been facilitated technically and economically by use of carrier equipment which is compatible with Western Electric L1 equipment, enabling interconnection with Southern Bell's TD-2 system directly at super group frequencies. This eliminates back-to-back voice frequency equipment at the interconnection point.

The expansion is taking place on Southeastern's main microwave outlet, linking Tallahassee with Monticello, Fla. At Monticello the company ties into the Southern Bell system, toll centering from the Bell 4A station at Jacksonville, Fla., for nationwide toll service.

The 26.4-mile Tallahassee-Monticello route includes two parallel microwave RF systems. One of these systems, accommodating 40 channels, has been in use since 1956. Expansion has been on the second system, a Collins Radio Co. system installed in 1959, using Collins MX-102 Carrier. When this phase is completed, the telephone company will have 180 channels on the microwave system. Of these, 48 will be dropped at Monticello and the remainder fed into the TD-2 system, with 120 channels going to Jacksonville and 12 to Thomasville, Ga.

The Carrier expansion follows closely on the heels of a major cutover in Tallahassee in which the area was converted to 7-digit dialing and a new satellite central office was cut into operation in the northern part of the city. Tallahassee, in addition to being the largest exchange area in the system, is the home office for the division which operates Southeastern Telephone Co., a subsidiary of Central Electric & Gas Co.

Southeastern is divided into two districts. The East Florida District, with eight exchanges, covers an area around Tallahassee, Florida's capital city, and an educational center. The West Florida District, headquartered at Ft. Walton Beach, also includes eight exchanges, and it serves West Florida's tourist areas and the military complex of the Eglin Air Proving Ground Center. Together the districts have some 41,000 stations, ranking Southeastern among the top four of the 22 Independent companies in Florida.

Toll traffic for the East Florida District has doubled in the last five years. Although existing open wire and open wire carrier circuits carry

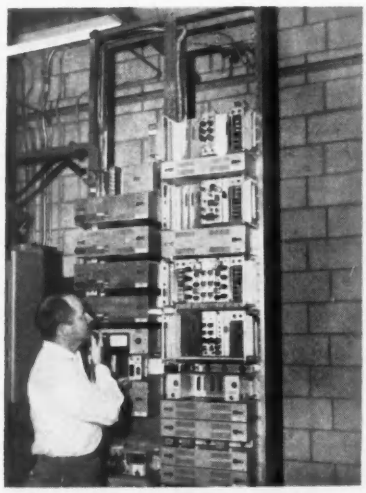
a portion of this load, the Tallahassee-Monticello microwave system has become the main toll facility, and expansion has been concentrated to date on microwave.

The two parallel microwave systems employ 8-foot parabolic antennas and 8-foot by 12-foot reflectors, sharing a 180 foot tower at the Tallahassee central office and a 200-foot tower at the Monticello office. Radomes protect the dishes from weather and debris.

The Collins MW-102 Microwave System, on which the carrier expansion is taking place, employs 551A-1 Receivers and 552A-1A Transmitters, with automatic frequency control, in a frequency diversity configuration. Tallahassee transmits on 6045 and 6135 mc, and Monticello on 6295 and 6385 mc. A diversity combiner operates off receiver pairs at each station to produce a single combined output with signal-to-noise ratio always equal to or better than that in the best receiver output.

At Monticello, super groups II, III and IV will be applied through coupling equipment to a 2200-foot video cable which connects with the Southern Bell TD-2. Super groups II and III will continue to Jacksonville unchanged, while super group IV to Thomasville, Ga., will be translated to another slot in the baseband because of the allocation scheme. Equipment is provided to sense RF on the microwave systems in either direction and to make all channels busy in the event of any path failure.

Expansion of Southeastern Telephone Company's toll facilities is being accomplished with Collins MX-102 L1 compatible carrier. Checking operation of Tallahassee installation is DAVID ALLBRITTON, central office equipment supervisor. Modular construction of the carrier enables a variety of system options and simplifies expansion.



Video cables (extreme top of right rack) connect Southeastern Telephone Company's microwave system with Southern Bell's TD-2. BERNARD PETERS, switchman leader, at Monticello, checks coupling, diversity and power supply equipment, at right. Left rack contains microwave RF and service channel equipment.

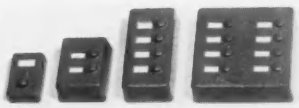
Channeling equipment is located at the Tallahassee toll center. The MX-102 Carrier, providing super groups II, III and IV in the expanded system, is mounted on 11 foot, 6 inch racks. This is a frequency division, single sideband, suppressed carrier system, which enables high density operation with statistical loading for high efficiency.

All of the frequencies required for the modulation steps are derived by frequency division and harmonic selection from a 108 kc precision crystal oscillator. In the channel units, ring modulators combine the audio with one of 12 channel carrier frequencies, and the outputs are filtered by Collins' mechanical filters. This step produces a base group of 12 channels in 4 kc steps occupying a frequency range of 60-108 kc.

Five base groups are modulated with appropriate frequencies to translate them to positions in a basic super group in the 312-552 kc range. Another modulation step translates the

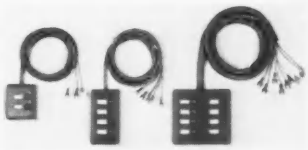
WHAT'S NEW AT SUTTLE

NEW PUSHBUTTON SERIES for extra subscriber sales!



SE554 SE559 SE561 SE565

For use in any audible signalling system, intercom use, or other office and shop subscriber use, SUTTLE pushbuttons answer all requirements. Lower in price than any others available, the housings are solid, executive type, blue-beige plastic. Cork base pads to prevent scratching are included with the SE559, SE561, and SE565. Used with the new SUTTLE Se-7 buzzer series or others. Write for full detail and prices.



SE559W SE561W SE565W

The SE559, 2-button, SE 561, 4-button, and SE565, 8-button, are available with a 6' 22 gauge flexible cord, pre-wired. Screw terminals with screws are provided with each unit and cord tips are included. Designed for use at normal telephone, house or office voltages. Write for full literature and prices.

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TWO MAN DRILL

Weighs less than 50 lbs. complete with auger. Powerful 4½ hp air cooled engine. Positive safety clutch and finger-tip throttle control.

MODEL 24B

The *original*, Portable Power Drill! Digs a true, clean hole, 2½ ft. deep in less than 30 seconds! Easily adaptable to any drilling job in earth, wood or ice. Weighs 29 lbs. (less bit). Powered by a 2½ hp air cooled engine. Positive safety clutch and finger-tip throttle control.

INTERCHANGEABLE Auger Bits and Shaft Extensions available for both models. Augers available from 2" to 12" diams.

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GENERAL EQUIPMENT CO.

OWATONNA 4, MINNESOTA

super groups to positions on the baseband for application to the microwave equipment.

Although super group I in the MX-102 for L1 allocations is 68-308 kc, a different arrangement is employed in the Tallahassee-Monticello system, and this super group, which drops at Monticello, is assigned the 12-216 kc range. Super group II occupies the normal 312-552 kc range; super group III, 564-804 kc, and super group IV, which is not filled at this phase, 812-860 kc. A 64 kc master pilot signal from Jacksonville is used to synchronize the carrier equipment at Tallahassee.

Redundant super group modulators and demodulators operating in parallel and standby basic frequency generation equipment, which is automatically switched into operation, provide continuity of service.

Southeastern Telephone Co. is also using microwave in its West Florida District, where special service circuits from Ft. Walton Beach and Eglin Air Force Base are interconnected with the TD-2 system. The Eglin complex is one of the largest of the U. S. Air Force's installations. In addition to the air proving ground center, where USAF's latest weapons are operationally tested, the complex includes a bomber base and an air defense base with Bomarc missile facilities.

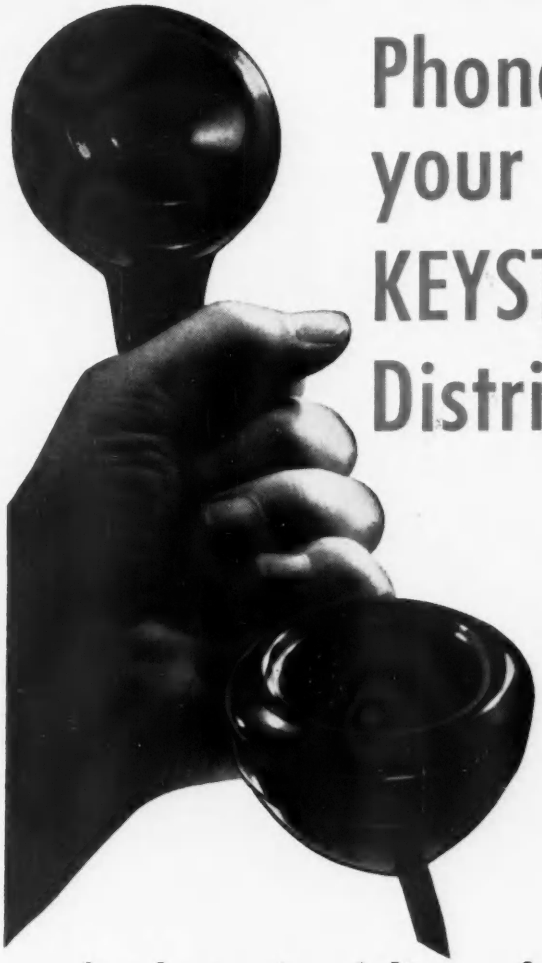
Southeastern microwave systems carry both voice and data intelligence for the Eglin complex. Existing systems extend from the TD-2 meeting point at Crestview southward to Gobbler Hill, branching off from there to Ft. Walton Beach and Eglin sites. A new MW-103 6 kmc Microwave System is being installed early this year to parallel these circuits and increase the system capacity. Initially this new system will accommodate 24 channels each for Ft. Walton Beach and Eglin AFB, using MX-102 and MX-103 Carrier. The microwave system is capable of expansion to 240 or more channels when required.

United Tel. Co. Display Tells Modern Service Story

TELEPHONE EXHIBIT of the United Telephone Co. of the Carolinas' recently told the story of modern telephone services to thousands of North and South Carolina residents attending the Moore County Fair, Carthage, N. C. and the Beaufort County Agricultural & Industrial Fair, Beaufort, S. C.

Services and equipment exhibited included color telephones, Petite instruments, a working key telephone system and automatic answering equipment. Other items such as amplifying equipment for noisy locations, outdoor and indoor jacks and

Miss North Carolina, ANN HERRING, visiting the United Telephone Co. of the Carolinas' exhibit at the Moore County Agricultural Fair, Carthage, N. C. ROBERT C. BISHOP, Commercial supervisor, is demonstrating pushbutton telephones to Miss Herring.



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Nelson Electric Supply Co.
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Southern Electrical Corp.
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Suttle Equipment Company
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Keystone Telephone Wire is available in a full range of Class A line wire in 50M, 85M, and 135M tensile strengths, and meets the specifications of A.S.T.M., A.T.&T. and is approved by R.E.A. Galvanized bond, tie and construction wire are also available at your Keystone Distributor.

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KEYSTONE
Wire for the Telephone Industry

. . . by the makers of famous Red Brand Fence

Shown working in Automatic Electric Co.'s training school at Northlake, Ill. are four men who represent the international aspect of the telephone industry. From left are AHMED SAID of Saudi Government Railroad, Dammam, Saudi Arabia; ENRIQUE LUENGAS HUBP of Automatic Electric de Mexico, Mexico City; MANUEL SALAVERRIA VILLEGAS of Creole Petroleum Corp., Caracas, Venezuela; and EDILBERTO ZULUETA of the U. S. Naval Base, Subic Bay, Philippines. The four men recently completed a 10-week course in "Operation and Maintenance of Strowger Automatic Telephone Equipment" at the Northlake training center. The course included classroom work.

Out of 2,000 hopefuls, MYRON G. MOHR (right) station superintendent for the Intra State Telephone Co., Galesburg, Ill., is the lucky sportsman to take home a new Winchester Model 12 Featherweight repeater rifle. A drawing for the lightweight rifle (about 6½ pounds) was held by Ramset Fastening System at the annual meeting of the U. S. Independent Telephone Association in the Conrad Hilton hotel, Chicago. JOHN N. SCHWALLER, left, Ramset's advertising manager, made the presentation. Ramset produces Shure-Set hammer-in fastening tools, Shure-Drive floating-action hammers, powder-actuated fastening tools and assorted fasteners. It is part of the Winchester-Western Division of Olin Mathieson Chemical Corp.

various types of horns and bells were also part of the display.

According to Joe R. Kimball, Southern Pines district manager, and S. D. Bowers, Beaufort district manager, orders and inquiries were received for almost every item on exhibit. The Petite and colored telephones proved to be the center of attraction with the key telephone system being a close runner up. A blue ribbon was given to the United Telephone Co. of the Carolinas for having the best display in it's class.

Virl L. Choate Heads Virginia Association

REPRESENTATIVES of 50 Virginia telephone companies convened in Roanoke when the Virginia Independent Telephone Association (VITA) held its 26th annual meeting. About 375 members of the industry were present. Meetings were held at the Hotel Roanoke.

The purpose of the 1960 meeting was to examine the telephone industry's role in public affairs, to explore some of the transmission paths of the present, and get a concept of the communications developments that are in the research stage.

Presiding over the Virginia convention was C. Lacey Compton, president of the VITA. The opening address was given by James P. Nolan, president of Folger, Nolan, Fleming, W. B. Hibbs & Company, Inc., member of the Board of Governors' of the New York Stock Exchange and a member of the Finance Committee of the United States Chamber of Commerce. Discussing the "General Business Outlook," he emphasized his belief that: (1) population will be expanding; (2) the long-term trend of the nation's standard of living is upward; (3) there will be technological advances that make the U. S. economy more efficient, and will make new products available.

Referring to the problems of today and the future, Nolan stated that "Whenever the leadership of American industry has clearly understood a problem, it has usually proved its ability, and its ingenuity, to find a practical solution that is consistent with

ACHIEVERFONE

30 for the cost of 20!

AChieverfone by AC has the lowest cost of all existing common carrier phone systems because it was designed solely for common carrier use. Look at these facts: First, the functions of the handset holder, junction box, ringer box and channel selector switch were combined in one simplified control head. Next, AC developed a unique, compact, simplified decoder with ⅓ the number of parts of other current transistorized models, and yet compatible with major mobile telephone signaling equipment. Third, modern assembly techniques for mass produced electronics equipment were used, putting the AChieverfone R-T chassis in one unit.

The result is two compact units giving you and your customers the lowest cost, most reliable MRS system on the market. In fact, you can buy 30 AChieverfones for the cost of 20 competitive models. Consider AChieverfone . . . for the first time mobile phones will repay you in immediate profits.

SPECIFICATIONS—FCC Type Accepted

Transmitter: 144-174 Mc, 4 channel

RF output: 22.5 watts into 52 ohm load

Receiver: 144-174 Mc, 4 channel

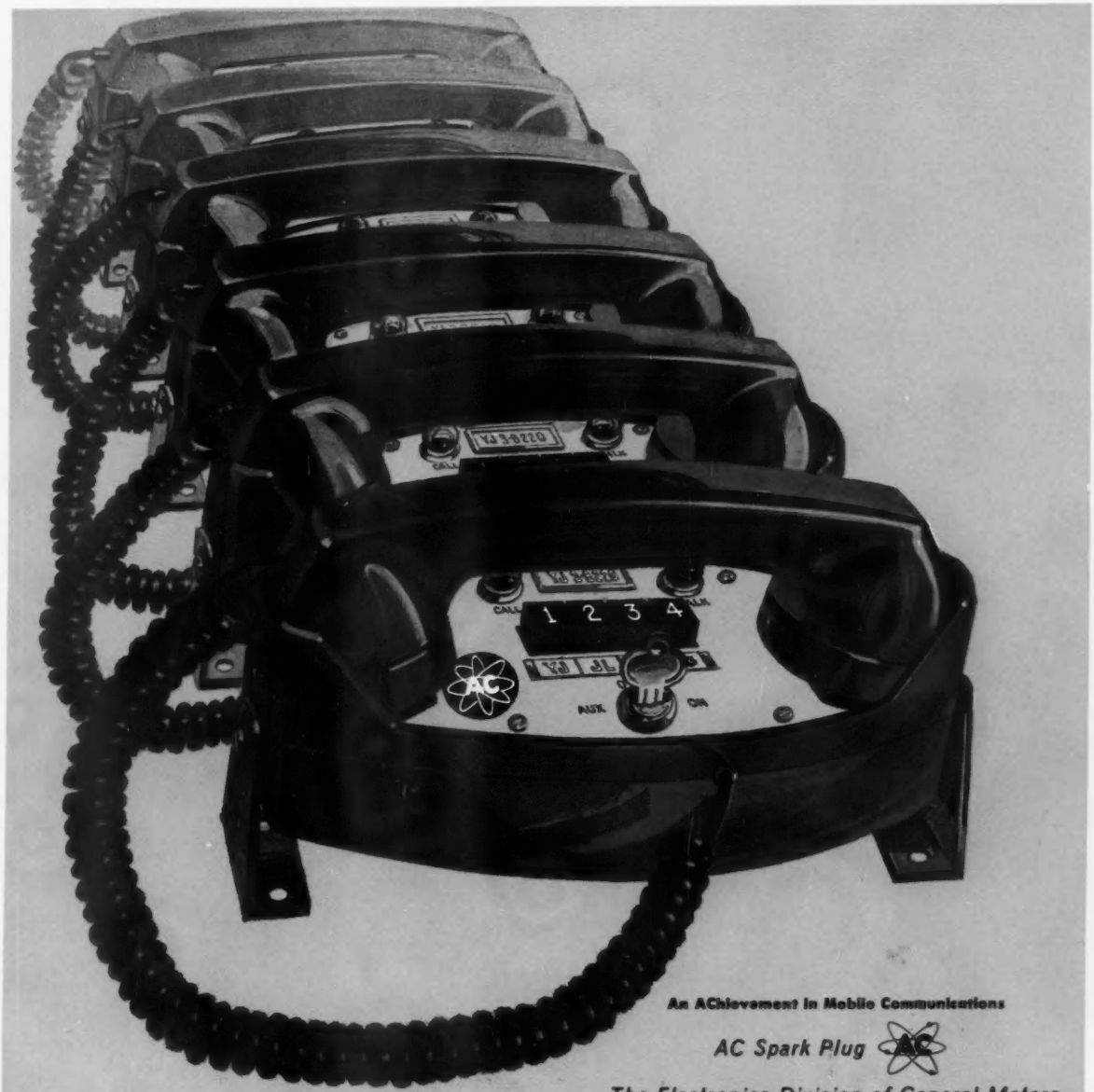
Wide Band (60 kc) or Narrow Band (30 kc) models available (Wide Band quickly converted to narrow by substituting IF filter)

Frequency Stability: within 0.0005%

Selective Signaling; 51,000 five-digit (compatible, 2-tone sequential) codes available

Size: Receiver-Transmitter, 21⅛" x 8⅜" x 6¼"

Weight: 35.5 pounds, including receiver-transmitter, control head and cable



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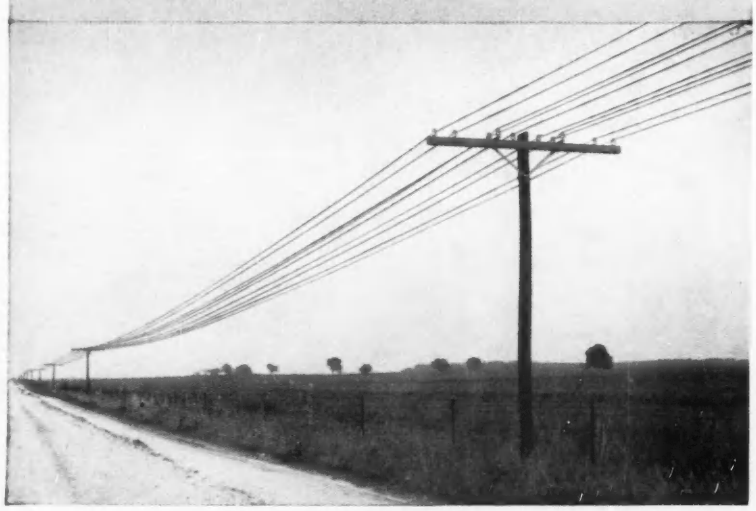
High Tensile Line Wire

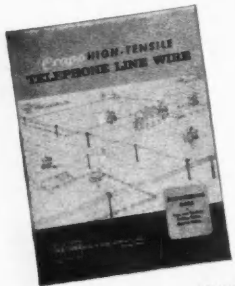
MADE TO WITHSTAND HEAVY STORM LOADS

Time and time again, *Crapo* HTL-135 has demonstrated its ability to stand up under heavy ice and wind loads when other conductors failed. This can be attributed to the fact that *Crapo* HTL-135 combines high strength with high fatigue endurance plus superior elastic qualities which enable it to spring back into place when loads are removed. The result: service interruptions are minimized, re-sagging is seldom necessary, where this rugged telephone wire is used.

The excellent telephonic transmission characteristics of *Crapo* HTL-135 make practical subscriber loops of 14 to 15 miles with normal voltages and equipment. Longer loops are possible where higher voltages and more sensitive telephone sets are employed. For dependable, long-span, low cost rural lines, specify *Crapo* HTL-135.



HERE'S PROOF OF DEPENDABILITY



The **Crapo** HTL-135 in this typical rural line of 300-foot spans was subjected to two heavy ice storms within 14 months. This photo shows the line, without resagging, three months after the second storm.

Write for Manual TM-59 containing complete engineering data!

Crapo HTL-135

INDIANA STEEL & WIRE CO., INC.
Muncie, Indiana

the principles of a free and competitive economy."

"Consequently," he said, "I feel that it is entirely constructive to encourage leadership to recognize that the economic conditions under which business must operate in the period ahead are very likely to be quite different from those of the past years. Just as soon as the habits and reasoning processes of the post-war period have been adjusted to a new environment, then I think we will have gone a considerable distance toward laying the foundation for a resumption of the major favorable trend in the country's economic growth."

J. W. Quilan, staff supervisor, traffic department, Chesapeake & Potomac Telephone Co., Piedmont, told the Virginia convention that Direct Distance Dialing (DDD) is "fast becoming a way of life with us."

"Generally," Quinlan said, "we expect two things of our new DDD equipment: (1) Maximum customer use so as to utilize full advantage of our enormous capital investment in plant, and (2) efficient and trouble free operation to provide good customer service and to utilize our plant."

Pointing out that the administrative approach to DDD problems may be considered under two categories — customers non-use of DDD, and the failure of the DDD call to be completed — Quilan stated that non-use of DDD — or the customers failure to accept it — may be caused by a variety of reasons, ranging from demand for T & C, insistance on P-P, internal business control, or simply dislike of the new method.

Emphasizing that "something other than equipment failure might prevent a DDD call from reaching its destination," Quilan stated some customers don't dial correctly and not only fail to get through but often reach people they don't want to talk to.

"This is annoying to the customer as well as expensive to the telephone companies," he said. "In either case, from the customer's viewpoint, it is not good service."

"Considering the effect of equipment failure," Quinlan said, "as the DDD network continues to expand

and as automatic alternate routes grow, it is quite impossible to determine the path that a call will take in proceeding to its destination."

"It will be switched through many centers and use many and different routes," he said "Failure can occur at any point along the way. It is well to bear in mind that the failure referred to here is *any* failure of the call to advance which is due to equipment malfunction. Fortunately, in most cases of failure, arrangements are provided to return to the customer a re-order signal. This is the signal famil'ar to the operator — similar to busy tone — but twice as fast."

Explaining that operators are trained to recognize the re-order signal and have clearly defined practices which tell them what to do, Quilan stated the customer believes it is a busy signal.

"From our experience with local dial and the extension of extended area service," he said, "we know the customer's reaction when he hears a busy signal. He simply waits for a few seconds and dials the call again and again. We have knowledge of one instance where a customer dialed a cross-country call 20 times in the period of a few minutes.

"How does this affect us? Well, this is really the hand in your pocket. It is this which causes all of us to install more equipment than is really needed both in circuits and trunks and in switching equipment. And the really unfortunate thing is that we don't know about it — not until quite recently, that is."

Reporting that the outward operator is in a position to recognize and give a report of the failures which she encounters, Quilan stated, "This is an extremely important source because the toll operator is using the same network and equipment that the customer uses."

"There is no question," he said, "as far as our company is concerned, that we are not using this source of equipment failure indication to maximum advantage. Until recently trouble tickets were being analysed and patterned at originating toll centers and primarily on a circuit use basis. This approach is a good one in developing circuit and terminal equipment failure but falls short of detecting troubles in terminating dial offices. Only recently have we started analysing trouble tickets on a terminal office basis in a joint traffic-plant approach on the problem."

"Methods and procedures of this analysis group are slowly being developed and it appears to have great promise in getting to the root of the problem. Working with the joint VITA — C & P transmission committee procedures are being develop-

Members of this Virginia Convention group are (l. to r.): JOHN G. CONLEY, Jr.; BILL SHEPHARD; DON ORANDER; RAY HORN; EARL OLINGER; and R. B. WISEMAN, Elkhart, Ind.

Directors of The Virginia Independent Telephone Association (l. to r.); P. T. CAMPBELL; CHARLES P. LAMM; WARREN B. FRENCH, Jr.; HARRY P. CAVENDISH; W. N. SCHOLL; VIRL L. CHOATE; E. C. GARNETT, Jr.; A. G. STOGDALE; A. E. REYNOLDS; C. LACEY COMPTON; and C. J. LOGAN.

C. LACEY COMPTON (right) outgoing president of the Virginia Independent Telephone Association, congratulates the new president, VIRL L. CHOATE, Martinsville. Other new officers elected by the directors on the final day of the 26th annual convention at Hotel Roanoke, are: A. G. STOGDALE, (left) of Staunton, secretary-treasurer; and C. P. LAMM, Charlottesville, 1st v. p.

The TEL-e-VAN, stocked with assorted color phones, visited practically every Tecumseh neighborhood covering approximately 90 per cent of the community's homes.

In each Tecumseh neighborhood the TEL-e-VAN became a meeting place for housewives. Conversations revolved around children, neighborhood problems and color telephones.

Inside the TEL-e-VAN, Service Representative MRS. THOMAS B. ROWDEN (right) points out the versatility of Gen. Tel's. new space-maker phone to MRS. BILL BERRY and her son.

ed that would permit the transmittal of trouble patterns to and from Independent and Bell companies. Several of your companies now plan to engage in a trial of trouble ticket recording by their outward operators with a duplicate ticket being forwarded to a central analysis group at Richmond. Details of the flow of trouble information to points concerned are being worked out."

Other Virginia Convention Speakers were: W. S. Crenshaw, division safety supervisor, Virginia Electric & Power Co., B. E. Bryngelson, general plant manager, Inter-Mountain Telephone Co., John B. Siegel, Jr., financial vice-president, The Life Insurance Co., of Virginia, Richmond; R. W. Neal, assistant vice-president of marketing and J. P. Frazee, general sales and servicing manager, of the Chesapeake & Potomac Telephone Co., of Virginia, Richmond; and, John B. Noggle, division traffic manager, Virginia Telephone & Telegraph Co., Charlottesville, Virginia.

Officers who will guide the Virginia Association in 1960-61 are: Virl L. Choate, Martinsville, president; A. G. Stogdale, Staunton, secretary-treasurer; and C. P. Lamm, Charlottesville, first vice-president.

"Tel-e-Van" Trailer Used In Marketing Experiment

"THE TEL-e-VAN trailer, filled with beautiful color phones, is at your door. Won't you come and select the ones you want for your home?" This was the gist of a unique phone market experiment staged by General Telephone in Tecumseh, Michigan recently.

Tecumseh was about to be converted from common battery to dial operation. And General Telephone of Michigan was out selling color telephones practically door-to-door with its giant mobile display and sales unit, the TEL-e-VAN. In a first-time company experiment, the van visited most of the residential areas of Tecumseh, a community of 7,000 population with 2,556 residential telephones.

A crew of five accompanied the TEL-e-VAN: the trailer operator, an advisor, and local telephone person-

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2174A

SPECIFICATIONS					
MODEL	FREQUENCY RANGE	SELECTIVITY	LEVEL FULL SCALE	ACCURACY	TYPICAL FILTER SELECTIVITY
2171	60 Cycles to 4 Kilocycles	30 Cycle or 50 Cycle Filter	−68 to +32dbm	± .5db −80 to +32dbm 300 Cycles to 4 Kilocycles	**30 CYCLE FILTER** 6db— 35 Cycles 60db—250 Cycles
2174A	300 Cycles to 400 Kilocycles	50 Cycle or 100 Cycle Filter*	−68 to +32dbm	± .5db −80 to +32dbm 300 to 400 Kilocycles	**50 CYCLE FILTER**** 6db— 60 Cycles 60db—450 Cycles
SPURIOUS RESPONSE: Below 60db LOW INTERMODULATION: Below 60db POWER REQUIREMENTS: 115 V. A.C.—50/60 Cycles. WEIGHT: 28 lbs.					**100 CYCLE FILTER** (STANDARD) 6db—140 Cycles 60db—900 Cycles

*Including a wider filter and demodulator for monitoring SSB, AM and FM signals.

This instrument utilizes the heterodyne principle with balanced modulation and highly selective crystal filters which achieve the high resolution needed for accurate amplitude measurements of Carrier and Microwave Sub Carrier channels. Direct reading in DBM for 135 and 600 ohm circuits or bridging. Offers fast accurate amplitude measurements throughout the frequency spectrum of 300 cycles to 400 kc. PRICE: $795 F.O.B. RAYTOWN, MISSOURI.

**50 cycle filter model priced slightly higher.

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nel consisting of a service representative working in the van, and two salesmen calling door-to-door. This team called on 1,151, or approximately 90% of Tecumseh's homes, resulting in 709 home visits and 741 adult visits to the trailer. A total of 372 telephones were ordered.

"Our objective," stated Ron Kinsman, Gen. Tel. Eastern Division Manager and originator of the idea, "was to lift merchandising out of the business office by taking the product to the customer. While improvements can be made in our sales technique, we were highly gratified with the results and plan similar campaigns throughout our Michigan operating area."

Housewives, on stepping into the trailer, were greeted by soft background music and a service representative. They were shown table, wall, compact-wall, speaker and amplifier phones . . . in assorted colors. Their telephone needs were discussed with them by the service representative, as were charges. A key in motivating sales was letting them select their color phones and actually giving them the instrument to take home. Many a sale was stimulated by one neighbor seeing another with her color telephone. "If you select your phone by 2 P.M., we'll install it for you today," was a line that added further impetus to sales.

Newspaper and radio advertising piqued interest in the TEL-e-VAN's visit. Residents continually called the Tecumseh business office to ask where the trailer was. They didn't want to miss it. "Exceptional reception," was the consensus by Gen. Tel's people.

Citizen comment was enthusiastic: "It's a good idea. It let's you know what colors you can get." "This is wonderful for people who can't get into town . . . some of them wouldn't get to see the phones." "I've already bought a color phone. My sister-in-law is looking forward to seeing the van." People in surrounding communities heard the radio spot announcements and called Gen. Tel's. Tecumseh office about color phones.

Mrs. Thomas B. Rowden, service representative, who worked in the van, said, "Everyone is in favor of the trailer coming into their neighborhoods." Carl D. Lamphier, telephone manager in a nearby community, on temporary duty as a salesman, said, "People unable to visit the TEL-e-VAN have invited us into their homes. I've sold three extensions today on such invitations."

Best prospect groups noted by Dwight A. Foulks, residential sales assistant, in his report on the Tecumseh experiment were: (1) Homes built since 1940; (2) homes of lower and middle price range; (3) housewives under age 40; (4) housewives with small children.

"Women with young ideas were our best prospects," Foulks summed up.

According to V. M. Paul, the Taylorstown (Pa.) Telephone Co. was an active participant in the recent bicentennial celebration at Washington, Pa. Top photo shows Taylorstown Telephone Co. truck in the bicentennial parade. Bottom photo shows Taylorstown Telephone Co. exhibit of old telephones. This exhibit was placed in display window of Caldwell's Department Store.

JAMES C. CRANE, retiring president of the West Virginia Telephone Association, addresses the organization's recent convention. Seated (l. to r.): Honorable MYRON R. RENICK, chairman of the West Virginia Public Service Commission; Honorable CECIL H. UNDERWOOD, governor of West Virginia; Mrs. JAMES C. CRANE, and Honorable GEORGE R. PERRINE, chairman of the Illinois Commerce Commission.

The Honorable GEORGE R. PERRINE, chairman of the Illinois Commerce Commission, addresses ninth annual convention of the West Virginia Telephone Association.

New officers of West Virginia Telephone Association (l. to r.): ROBERT MINEAR, secretary-treasurer; DELBERT C. DODRILL, president; DON E. FEASTER, second vice president; and MURRILL COLBURN, first vice president.

Fairbanks-Key West Call Highlights Alaska Cutover

ANOTHER page was turned in the annals of the telephone industry recently, when the Municipal Utilities System at Fairbanks, Alaska, put a new dial office into service. The occasion called for a celebration — by telephone as well as a luncheon of community leaders — from the far north at Fairbanks to the Key West, Florida exchange of Southern Bell Telephone & Telegraph Co.

It was a chilly mid-day in Alaska as the Fairbanks people assembled for the commemorative luncheon, and a hot, sunny afternoon in Florida. Only a short while before, the last of some equipment had come in from Automatic Electric Co. to finish up the new Fairbanks installation.

Around the luncheon tables in Fairbanks sat the members of the city council, the Municipal Utilities board of directors and other guests, waiting for Mayor Joseph Ribar of Fairbanks to arrive and place the ceremonial call. A sand beige speakerphone had been installed for the occasion so that all present could hear.

Mayor Ribar, delayed in his arrival to get the program started, explained that his tardy call to Key West was due to natural causes. He is a doctor and was delayed at the hospital delivering a baby.

In Florida, City Manager Bazel E. Crowe laughingly replied that Mayor Delio Cobo of Key West was unable to be present to receive the call because he, too, is a doctor and was detained on business.

This exchange of oddities established a common bond between the telephone callers, reflecting life in America, when two of its most interesting cities have doctors as mayors, and each might be detained in important civic functions by the necessity of assisting at births or bringing other comforts to their fellow citizens.

Mr. Crowe was flanked by Zeke O'Farrell, Southern Bell group manager, Harry Knight of American Telephone & Telegraph Long Lines Department, who is also a Key West city council member, and L. R. Menendez, Southern Bell plant manager.

Among the distinguished guests present at the ceremonies was Dr. William R. Wood, president of the University of Alaska. The cutover

Telling officials in Key West, Fla. about the new telephone service are from left GEORGE HALLER, general manager of the Municipal Utilities System, Fairbanks, Alaska; VINCENT J. THIERMAN, chairman of the Public Utilities Board; DR. JOSEPH RIBAR, mayor of Fairbanks; and HARRY RIEMER, Fairbanks telephone superintendent.

BAZEL E. CROWE, city manager of Key West, Fla., gets a first-hand report on the weather in Fairbanks Alaska, and the new telephone facilities provided by the Municipal Utilities System. From left are HARRY KNIGHT of American Telephone & Telegraph Long Lines Department; MR. CROWE; ZEKE O'FARRELL, Southern Bell Telephone & Telegraph Co. group manager; and L. R. MENENDEZ, Southern Bell Telephone & Telegraph Co. plant manager.

Shown in the Municipal Utilities System's new dial office are from left J. R. SIMPSON, comptroller; GEORGE A. HALLER, general manager; L. L. GLASCOE, administrative assistant; HARRY REIMER, telephone superintendent; and BERT PROCTOR of Automatic Electric Sales, Seattle office.

ceremony, which commemorated the cutover of the new Greenwood exchange for the University area, also signalized conversion to seven-digit numbering for the system. The other Municipal Utilities System central office in Fairbanks is the Globe exchange.

Since 1948, when the Municipal Utilities Systems' telephone department took over from the Northern Commercial Co., telephones in service have increased from 1900 to some 7100. The number of miles of cable have increased from six to 62 and the number of listings in the telephone directory from 2200 to 6000.

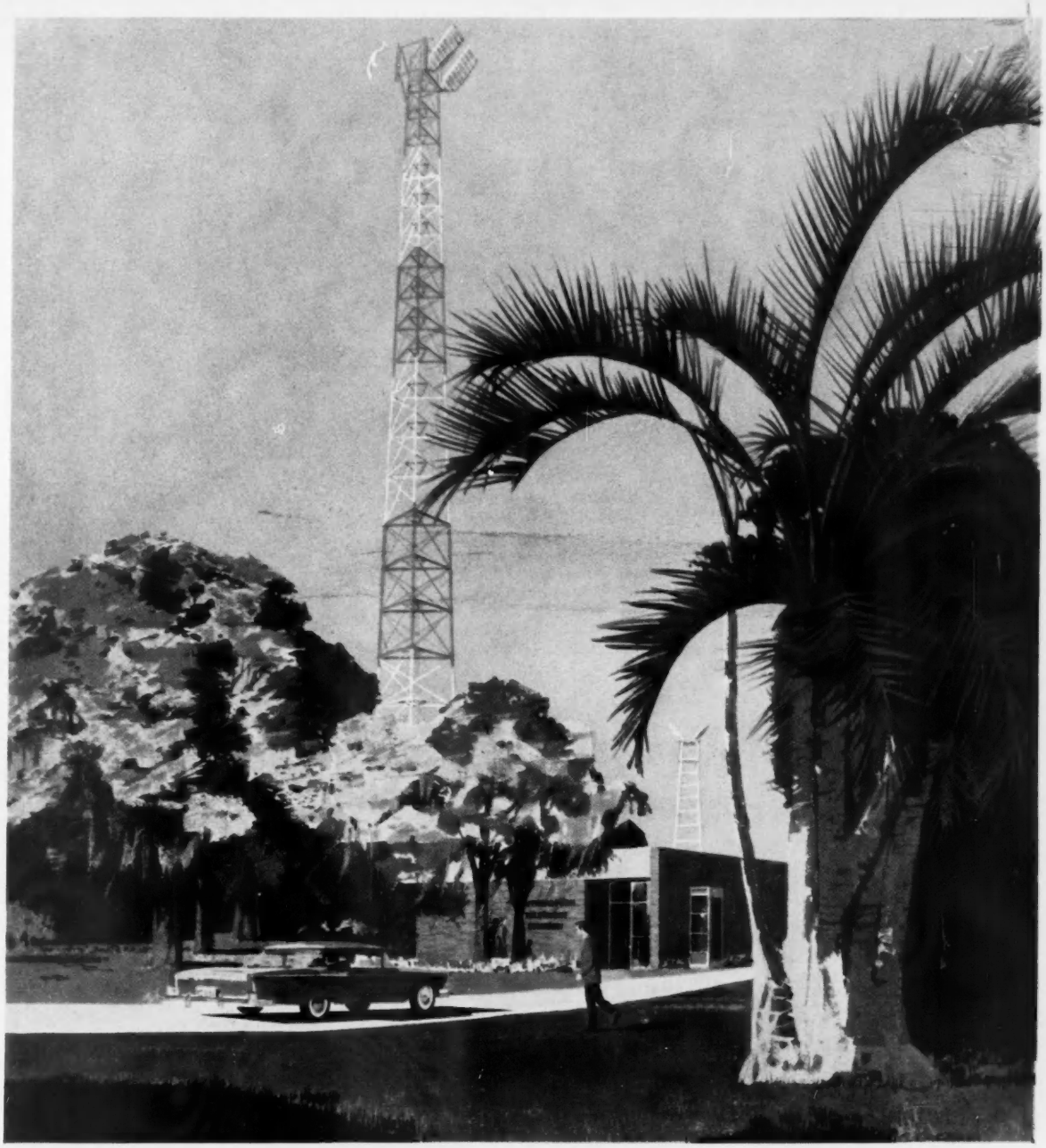
Fairbanks, only 125 miles below the Arctic Circle, is a city of more than 13,000 population. It is the north terminus of the Alcan Highway and the Alaska Railroad. It is the principal community of the Alaskan interior, and the commercial center, a vast area comprising some 227,000 square miles. Fairbanks was first settled in 1902 as a gold mining center, and gold mining is still a chief industry in the area.

David Barker Dies

DAVID MONROE BARKER, 66, retired plant superintendent of the Ellijay (Ga.) Telephone Co., died suddenly at his home in Ellijay, November 25. The immediate cause of death was a heart attack, but Mr. Barker had been suffering from bronchial asthma for several years, and it is thought this condition affected his heart.

Mr. Barker had been in the telephone business since 1915, having been employed in that year by the old Cumberland Telephone Co. in McKenzie, Tenn., where he was born. Subsequently, he was employed by the Southern Continental Telephone Co. and the South Carolina Continental Telephone Co., at Sumter, S. C., leaving that company in 1947 to accept a position as plant superintendent with the Ellijay Telephone Co., continuing in that position until his retirement.

Mr. Barker is survived by his widow, four married daughters and his mother, Mrs. Ella Chandler Barker, of McKenzie, Tenn.



SOUTHEASTERN TELEPHONE COMPANY expands with Collins L1-compatible carrier for direct toll system interconnection.

Growing toll traffic from Florida's capital city area has led Southeastern Telephone Company to expand to 180 channels on its main toll outlet, a 26.4 mile Collins Microwave System between Tallahassee and Monticello, Fla. At Monticello, three super groups are fed directly at baseband frequencies into the Southern Bell TD-2 system. Direct compatibility of Collins Carrier with Western Electric L Carrier — both L1 and L3 allocations — eliminates back-to-back voice frequency equipment at the interconnect point. Southeastern is also enlarging its plant in West Florida with a new four station Collins Microwave and Carrier System providing special service voice and data circuits for Eglin Air Force Base. For consultation and assistance on your expansion program, contact Collins Radio Company, Texas Division Sales, 1930 Hi-Line Dr., Dallas 7, Texas.

COLLINS MICROWAVE AND CARRIER

COLLINS RADIO COMPANY • CEDAR RAPIDS, IOWA • DALLAS, TEXAS • BURBANK, CALIFORNIA

Reliable Electric Company has announced the appointment of DONALD J. SMITH to the newly created position, Director of Engineering. Smith's background includes engineering work with General Telephone of California. Since 1956, he has been Reliable's Northwest District Representative, Seattle, Wash.

General Cable Corporation has announced the transfer of PAUL SAULNIER to the Rochester sales office where he will serve as regional telephone manager covering the territories of Rochester, Buffalo, Syracuse, Boston, New Haven, Newark, New York City, Plainview L. I., Philadelphia and Pittsburgh.

DAVID V. STASTNY has been added to the sales staff of Reliable Electric Company. He represents Reliable Electric in Maryland, Delaware and in eastern Pennsylvania, with headquarters in Philadelphia. He reports to District Manager Arthur Kelley. Stastny has had extensive experience in the utilities field.

SUPPLIERS' NEWS BRIEFS

Calculagraph Occupies New, Modern Plant

THE CALCULAGRAPH CO., for over 65 years a supplier of toll timing equipment to the telephone industry, has occupied a new, modern 30,000 square foot factory and office building in Hanover, N. J.

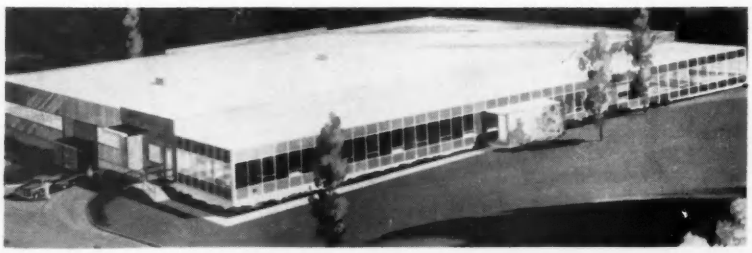
Calculagraph's President, William C. Moodie, Sr., a well-known figure in the industry, reports that the company's new plant will permit all new, modern manufacturing methods and provide greater facilities for expansion, research, development and engineering. Hanover is 25 miles and 45 minutes from Times Square in New York or Newark Airport.

For the past 45 years, the company was located in Harrison, N. J. During these and the preceding years, when the company was located in New York City, Calculagraph's Telephone Division designed and built over 100,000 toll call recorders for the telephone industry alone. Many of the recorders are still in use and are maintained through the factory service facilities. The company's research and development activities resulted in the development of various models and modernization improvements to keep pace with advances in the telephone industry.

ITT Kellogg Advances Hugh J. Tremblay

HUGH J. TREMBLAY has been appointed manager of marketing and sales for ITT Kellogg's communications systems department. In this capacity, he will be responsible for sales of military communication systems, both directly to the government or through common carriers or weapon system contractors.

For the past three years Tremblay served as coordinator of communications system programs. He has been active in SAGE (the nation's air warning system) and other defense



New 30,000 square foot factory and general offices of the Calculagraph Co., Hanover, N. J. The building is situated on 15 acres of company-owned land and is so constructed that expansion is easily accomplished by removing the exterior rear wall. The structure houses executive and sales offices, manufacturing and warehousing facilities, shipping and receiving centers, engineering and laboratory facilities and a company cafeteria.

programs, including the Atlas ICBM for which ITT Kellogg is prime contractor for ground support communications.

A graduate of Illinois Institute of Technology with a Bachelor of Science degree in electrical engineering, Tremblay was employed by Illinois Bell Telephone Co. as a supervisor engineer before coming to ITT Kellogg, a division of International Telephone & Telegraph Corp. He served with the Army Air Force and Signal Corps in the South Pacific during World War II.

PAUL J. GADBOIS

Gen. Tel. Directory Advances Paul Gadbois

GENERAL Telephone Company's Vice President-Sales, R. T. Beard, has announced the promotion of Paul J. Gadbois to sales training director.

Formerly an assistant division manager at the company's Long Beach, Calif. division, Gadbois, a 12-year-employe, is performing his new assignment from the company's Des Plaines, Illinois headquarters.

A native of Minneapolis, Minn., Gadbois launched his Yellow Pages' career in 1948 as a salesman with the George Beatty Directory Co., which later merged with the General Directory organization.

Following two-years with the Air Force during the Korean Conflict, Gadbois transferred to the directory company as a sales representative in 1953 and, in the same year, was named sales supervisor. In 1958 he

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CONTAINING FOUR TO SEVENTY-SIX COILS

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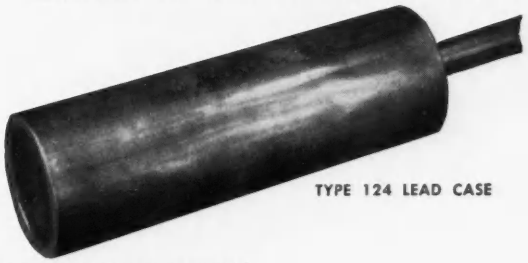

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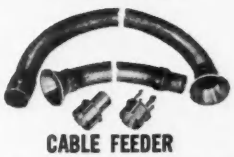

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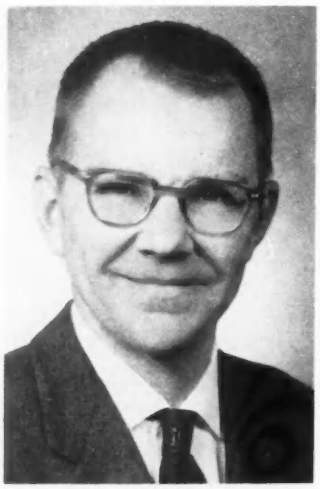
was promoted to sales training supervisor in the Western Region and in 1959 was named an assistant division manager at Long Beach.

Gladwin Plastic Announces Personnel Changes

THE BOARD of Directors of Gladwin Plastics, Inc., has announced changes in duties and responsibilities of certain officials of the Company.

At a recent meeting of the Board, Clement A. Evans was elected Chairman of the Board. Evans has been



EARLE BLOMEYER

associated with the Company in the position of president for the past 6 years. He is also president of Clement A. Evans & Company, investment bankers in Atlanta.

Earle Blomeyer, formerly vice-president of the company, was elected president to replace Evans. Blomeyer has been associated with the Company for approximately 4 years in his former capacity. Before joining Gladwin he had approximately 20 years service with the Gary Group of telephone companies, prior to the merger of the Gary Group into the General Telephone System.

James J. McHugh has been appointed sales manager of the company to fill the vacancy created by the recent death of Ralph F. Chambers. McHugh has been associated with Gladwin for approximately 3 years as a sales representative in various territories covering the Eastern and Midwestern section of the U.S.A.

JAMES J. McHUGH

Claude H. Jensen Retires From Copperweld

AFTER THIRTY years of service, Claude H. Jensen has retired as chief electrical engineer of Copperweld Steel Company's Wire & Cable Div.

Prior to joining Copperweld as assistant electrical engineer in 1930, Jensen was associated with Duquesne

CLAUDE H. JENSEN

Light Comapny, West Penn Power Company, and Westinghouse Electric & Manufacturing Company.

A graduate electrical engineer of Washington State College, and a registered professional engineer in the state of Pennsylvania, he has delivered many technical papers, as well as having had published a number of articles on grounding and grounding practices.

R. W. DAVISON'S appointment as assistant sales manager of the Electrowriter Division of Comptometer Corporation has been announced by J. G. Johnson, General Sales Manager of the Electrowriter Division. Davison joined Comptometer Corp. in 1960.

Klein & Sons Advances Sales Managers

MATHIAS Klein & Sons, Inc. has announced the appointment of H. B. Wilson as general sales manager. Wilson has been associated with Klein for the past 20 years.

Charles Castino, who had charge of Chicago sales, has been appointed sales manager, specializing in the electronics field.

Richard Colsant will take over Chicago sales, and Don Swanson has been appointed representative for the Pacific Northwest, with headquarters in San Francisco. William Walley will represent Klein in Atlanta.

New ITT Kellogg Catalog

ITT KELLOGG has announced free availability of a newly-published, 24-page Telephone Selector catalog.

The catalog's illustrations and text detail features of the ITT Kellogg K-500 series standard telephones; convenience telephones, including the company's new Cinderella phone; K-1A1 key telephone systems; and the new K-580 paystation telephone.

Copies of the new Telephone Selector catalog are available without cost from: *ITT Kellogg, A Div. of ITT Corp.*, 6650 *S. Cicero Ave., Chicago* 38, *Ill.*

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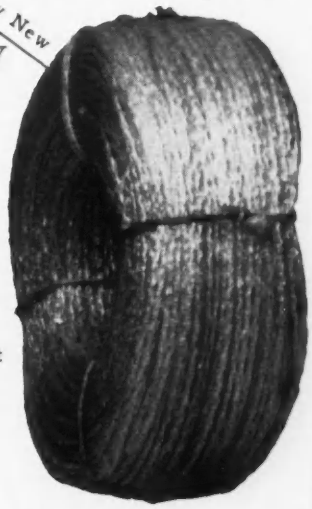

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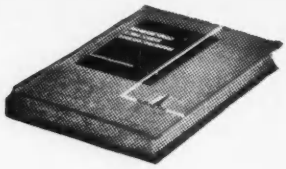

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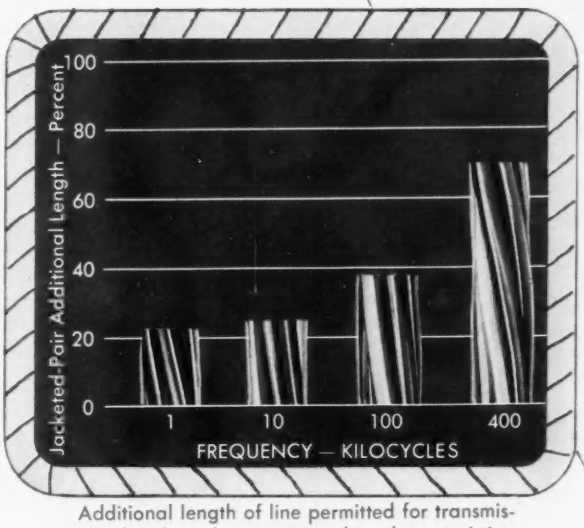

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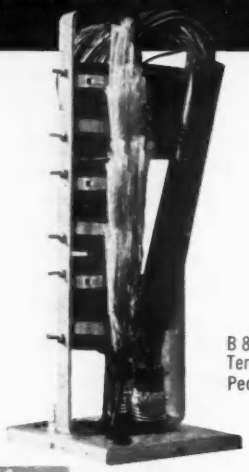

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THE BACK OF THE BOOK

By JOHN G. REYNOLDS

"Worth Its Weight In Gold"

MANY customers readily admit that telephones are worth their weight in gold. But, according to *California General News*, few can say, as do 30-year employes of E. F. Hutton & Co. — a brokerage firm — "*Not only is my phone worth its weight in gold; it is gold!*"

It all started a few weeks ago when the stock brokerage firm was seeking a way to honor its long time employes. Someone came up with the golden idea of spraying gold paint on telephones and presenting them to the Hutton veterans.

Gen. Tel., when asked if it would participate in the venture, soon provided golden hued phones for the ceremonies.

Mission Division Manager William M. Owen presented gold phones to two Hutton employes in Santa Barbara; and Southern Area General Manager C. E. Scott awarded the symbolic instrument to a Hutton employe in Long Beach.

The value of gold, fickle though it may be on the world market, remains constant at E. F. Hutton & Co.

Oversight

SOUTHWESTERN *Telephone News*' story of the month concerns a Brookfield, Mo., customer who came into the business shortly before the new dial system was cut into service. She had a complaint: *There was no "Q" on the telephone dial.*

Service representative Mamie Lambert explained that there never is a "Q" on a telephone dial, and it was nothing to worry about. But the customer, unconvinced, asked: "*Then how do you expect me to dial the Quimbys?*"

How's Your Bowling?

IF your bowling average is high and you want some competition, look up Margaret Urie, the next time you are near Denver, Colo. One night last month Miss Urie, operator, Traffic department, Mt. States Tel. & Tel. Co., Denver, really racked up the strikes and spares when she bowled a 706 series. It is believed to be the highest series ever recorded by a woman in sanctioned league play in Colorado.

Margaret's recent "record breaking" series of 245—249—212 brought her average up four pins, making it 184 so far this season.

As you probably have guessed, Margaret's favorite sport is bowling, "because it is fun and it is good exercise, too." She has been an avid bowler for a number of years and at present is bowling twice weekly with two leagues.

Margaret represented Colorado in the All-Star Bowling Classic in Minneapolis in 1957.

NO. 1 OF A SERIES

* The Warren Transistor Power Pack is a complete power, ringing and tone supply for PBX, PAX, and PABX installations . . . in one transistorized, economical package. Warren offers a complete line, seven 24-volt models and seven 48-volt models, none of which look like the one in the drawing. (This situation is corrected below.)

But back to the pack. It combines a battery charger/eliminator with a ringing generator and a dial/busy tone generator in a complete, integrated power supply. And it will save you money. Here's why:

. . . because no standby equipment is required where batteries are used in PBX (both ringing and tone generators are d.c. operated)

. . . because its initial cost is lower than the cost of buying individual components separately.

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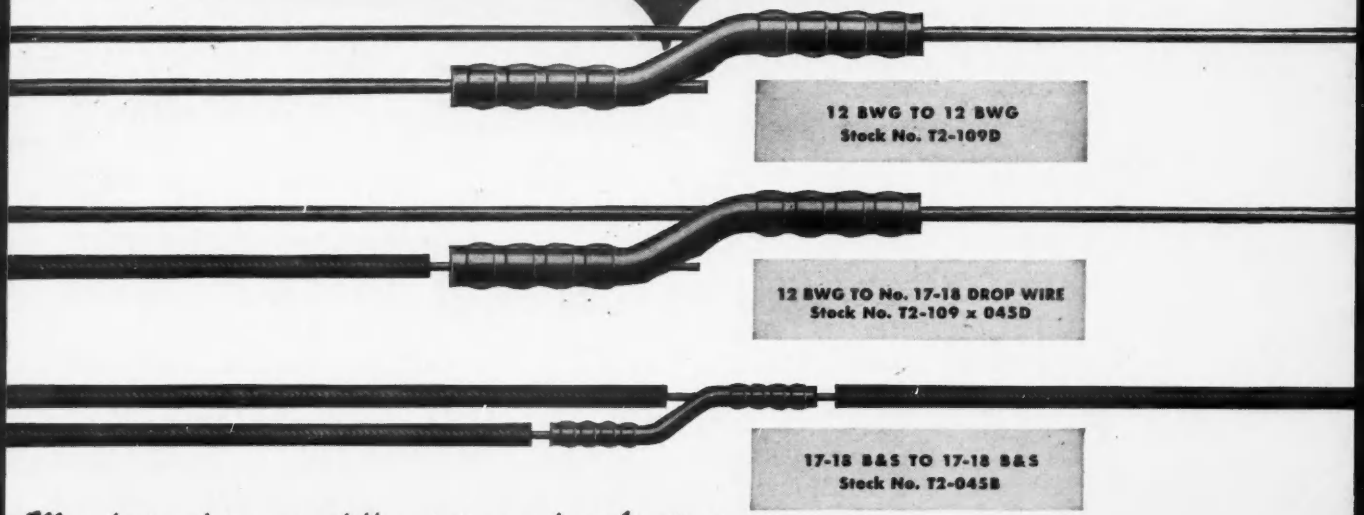

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